REPORT RESUMES

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THE PEACE CORPS EDUCATIONAL TELEVISION (ETV) PROJECT IN COLOMBIA-- TWO YEARS OF RESEARCH. OVERVIEW OF RESEARCH REPORTS NO. 1-10.

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THIS DOCUMENT SUMMARIZES A TWO YEAR RESEARCH PROJECT DESIGNED TO EVALUATE INTRODUCTION OF EDUCATIONAL TELEVISION IN COLOMBIAN SCHOOLS BY THE PEACE CORPS. MANY DIFFERENT STUDIES OF PEACE CORPS EFFECTIVENESS WERE CONDUCTED, USING FIELD EXPERIMENT AND SURVEY (MAIL QUESTIONNAIRE, PANEL, INTERVIEW) TECHNIQUES TO MEASURE ATTITUDES AND BEHAVIORS OF PEACE CORPS VOLUNTEERS, AND COLOMBIAN TEACHERS, PUPILS, AND PROFESSIONAL AND TECHNICAL PERSONNEL. STATISTICAL ANALYSIS OF--15,000 TESTS GIVEN TO PUPILS, 1550 GIVEN TO TEACHERS, SIX SURVEYS OF 5200 TEACHERS, AND 1000 HOURS OF INTERVIEWS WITH VOLUNTEERS AND TEACHERS YEILDED FEEDBACK ON THE PROJECT'S SUCCESS AND ITS MANY TECHNICAL PROBLEMS PLUS SUGGESTIONS FOR IMPROVEMENT IN BOTH TEACHING TECHNIQUES AND MEASUREMENT DEVICES. TOPICS OF THE 10 INDIVIDUAL PROJECT REPORTS SUMMARIZED ARE--THE PROJECT'S ORGANIZATION, THE FIRST SEMESTER--PUPIL ACHIEVEMENT, TEACHER ATTITUDES AND THE VOLUNTEER, IMPROVING THE EFFECTIVENESS OF THE VOLUNTEER AND THE TEACHER, MAKING EDUCATIONAL TV WORK IN A DEVELOPING COUNTRY'S SCHOOLS, A VOLUNTEER'S DAILY JOB, IN-SERVICE TEACHER TRAINING BY TELEVISION, IMPROVING THE EFFECTIVENESS OF VOLUNTEER EFFORTS TO CHANGE TEACHER BEHAVIOR, THE TELEVISED CURRICULUM AND THE TEACHER, THE VOLUNTEER, FEEDBACK TO THE PEACE CORPS. (LH)

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THE PEACE CORPS
EDUCATIONAL TELEVISION (ETV) PROJECT IN COLOMBIA -- TWO YEARS OF RESEARCH

OVERVIEW of Research Reports No. 1-10

By George Comstock and Nathan Maccoby
with Patricia Comstock

Institute for Communication Research
Stanford University
November, 1966

EM 006 112

CONTENTS

Page

Introduction 1

The Final Reports 2

An Introduction to Research Reports No. 1-10 3

- Research Strategy 4
- Research History 4
- The Quantity of Research 5
- Previous Publications 6
- The Research Role of the Volunteers 6
- Problems in Conducting Research on the Peace Corps Abroad 7
- The Stanford Research Staff 8

Research Report No. 1: The Project As a Whole -- Organization, Adaptation, and Expansion 9

- Background 10
- Goals 13
- Organizational Structure 14
- The Televised Curriculum 15
- The Receiving Network 17
- Personnel 20
- Some Major Problems 22
- Project Adaptations 23
- Economics 27
- The Timetable 27

Research Report No. 2: The Project's First Semester -- Pupil Achievement, Teacher Attitudes, and the Work of the Utilization Volunteer 29

- The Field Experiment 31
- The Panel Study 33
- Volunteer and Teacher Interviews 37
- Volunteer Problems, Challenges, and "Critical Incidents" 39
- The Follow-up to the Field Experiment 40
- The Follow-up on Volunteer-Teacher Contact 41

CONTENTS (continued) Page

Research Report No. 3: Improving the Effectiveness of the Utilization Volunteer and the Utilization of ETV by the Colombian Teacher 42

Theory and Method 43

Results 45

Discussion 45

Research Report No. 4: The Colombian Teacher and the Utilization Volunteer -- Making ETV Work in the Schools of a Developing Country 47

Methodology 48

Background 49

Problems Disrupting Television Use in the Schools 50

What Volunteer Help Meant 54

Teacher Desire for Volunteer Attention 60

Teacher Communication About ETV 61

Two Case Studies 65

Teacher Rating of the Volunteer 67

The Actual Amount of Volunteer Attention 68

Research Report No. 5: The Day-to-Day Job of the Utilization Volunteer -- Structure, Problems, and Solutions 71

Methodology 71

What "Critical Incidents" Told About the Volunteer's Role 72

What School Case Studies Told About How the Volunteer Worked 74

What the Volunteer Needs to Fulfill His Role 79

Research Report No. 6: Instructional Television for the In-Service Training of the Colombian Teacher 82

Three Studies 82

A Major Fourth Study 85

CONTENTS (continued)

Page

Research Report No. 7: Improving the Effectiveness of Peace Corps Efforts to Change Teacher Behavior 88

Theory and Method 88

Results 90

Discussion 91

Broad Implications 96

Research Report No. 8: The Televised Curriculum and the Colombian Teacher 96

Ratings of Courses 97

Measuring Specific Complaints . 99

What the Teachers Disliked In General 99

Complaints About Specific Courses 100

Some Implications 103

Complaints and Overall Ratings 103

Some Implications 107

Teacher Guides 109

General Attitudes Toward the Television 111

Discussion 112

Research Report No. 9: The Volunteers 114

The Volunteer and the Project 115

Effects of Service on Volunteers 117

Attitude Change at Beginning and End of Service 119

Research Report No. 10: Feedback to the Peace Corps on Project Progress -- Some Models and Suggestions 121

Product Feedback 122

The Survey Method 123

Other Feedback 124

Operational Feedback 125

Simpler Feedback 126

Making Use of Good Feedback 127

General Applicability 127

The Peace Corps Educational Television (ETV) Project in Colombia was inaugurated at the beginning of 1964, with about 85 Volunteers producing television, installing TV sets in schools, and working with teachers in the television schools to insure the effective use of the new instruction. The telecasting of instruction began in February to about 200 schools with about 1,000 teachers and about 38,000 pupils. Two years later, at the end of 1965, the televised instruction was reaching about 925 schools with about 7,000 teachers and about 260,000 pupils. At the beginning in 1964 there was about 330 minutes a week of televised instruction. Two years later, this figure had doubled to 660 minutes a week. The goal of the Peace Corps in this project was to help Colombia apply the modern electronic medium of television to the solution of its educational problems.

During its first two years, the Institute for Communication Research at Stanford conducted a series of studies on this unusual Peace Corps undertaking in addition to continuous close observation of the project's daily operation. A field staff was maintained in Colombia for the entire two years, from January of 1964 through January of 1966. This volume presents an overview, or summary, of the findings of this research.

The Final Reports

The final report to the Peace Corps on our studies consists of a series of twelve separately bound volumes, of which this *Overview* is the final one. The other eleven volumes include ten numbered research reports, each dealing with a different topic, and an initial, unnumbered introductory volume that broadly sketches the history and nature of our research and provides a key to the individual reports.

The overall title of the series is: *The Peace Corps Educational Television Project in Colombia -- Two Years of Research*. The "two years of research" refers to the actual time spent in Colombia conducting studies, and not to the subsequent time required for analysis and the preparation of the final reports.

The titles of the twelve individual volumes are:

An Introduction to Research Reports No. 1-10.

Report No. 1: The Project as a Whole -- Organization, Expansion, and Adaptation.

Report No. 2: The Project's First Semester -- Pupil Achievement, Teacher Attitudes, and the Work of the Utilization Volunteer.

Report No. 3: Improving the Effectiveness of the Utilization Volunteer and the Utilization of ETV by the Colombian Teacher.

Report No. 4: The Colombian Teacher and the Utilization Volunteer -- Making ETV Work in the Schools of a Developing Country.

Report No. 5: The Day-to-Day Job of the Utilization Volunteer -- Structure, Problems, and Solutions.

Report No. 6: Instructional Television for the In-Service Training of the Colombian Teacher.

Report No. 7: Improving the Effectiveness of Peace Corps Efforts to Change Teacher Behavior.

Report No. 8: The Televised Curriculum and the Colombian Teacher.

Report No. 9: The Volunteers

Report No. 10: Feedback to the Peace Corps on Project Progress -- Some Models and Suggestions.

An Overview of Research Reports No. 1-10.

We will review the contents of each volume in turn, beginning with the Introduction in order to provide some background on the research generally, as distinct from the studies and findings. However, we must warn that these summaries must not be taken as substitutes for the reports themselves, for by necessity they are limited to the highlights.

An Introduction to Research Reports No. 1-10

Our research was undertaken because the Colombia project was the Peace Corps' first attempt to help a developing country establish an instructional television system on a large scale. As a result, the project assumed the status of a prototype for the Peace Corps.

The research was to concentrate on the effectiveness of the Peace Corps in this new activity, with emphasis divided between feedback on project progress, evaluation, and the improvement of project operations. The mandate of the research contract with the Peace Corps, signed late in 1963, was broad, permitting the focusing of the research on whatever issues seemed to hold the most promise for useful information as the project developed.

The research was to have a dual utility:

a) It was to be helpful to this particular Colombia project, by providing feedback to the Peace Corps while the project was in action.

b) It was to be helpful to the planning of future Peace Corps projects, by providing information pertinent to undertakings similar in character, purpose, or mode of operation.

Research Strategy: No single "grand design" would have made it possible for us to study the broad range of topics with which we were necessarily concerned in this Peace Corps endeavor, which involved Volunteers, Colombian teachers, their pupils, Colombian television personnel, Colombian educational officials, and others, in a variety of functions. As a result, we chose to conduct a wide variety of more narrowly focused studies within the framework of our broader aims. As the project developed, we shifted our attention from problem to problem in an attempt to maximize the usefulness of our research, always building on our past findings and experience. We concentrated on studying the effects of Peace Corps actions -- whether it was the design of a particular televised course, or the behavior of Volunteers -- so that the results of our research could be readily applied.

Research History: The two principal authors, Nathan Maccoby and George Comstock, arrived in Colombia to begin study of the project in January of 1964. Initially, the Peace Corps had planned to end its large scale participation in the ETV Project shortly after the end of the first semester of 1965, after three full semesters of televised instruction, when the term of service of the original group of about 85 Volunteers expired. However, unanticipated difficulties, coupled with considerable visible accomplishment and the promise of future steady progress, caused the Peace Corps to extend its participation, and Peace Corps involvement in educational television in Colombia is now scheduled to continue at least through 1968. The original period of field study was scheduled to cover fully the three semesters that were initially planned as the Peace Corps' total contribution. However, with the extension of Peace Corps involvement, the period of field study was extended to fully cover the first four semesters.

As a result, Stanford maintained a research staff in Colombia for two years, from January of 1964 to January of 1966, and what began as 18 months of field study became 24 months, with a consequent increase in the number of studies conducted and amount of data collected. In fact, this extension about doubled the amount of research, and our work, since it not only led to the fuller development of on-going studies and some new studies, but also involved us with new Volunteers, television in new areas, and in our continuing surveys of teachers with far larger numbers than we had dealt with during the first year and a half.

The extension was at Peace Corps request. It came about because the project was developing very rapidly during its second year after a number of initial difficulties, and the Peace Corps wanted us to give it close attention throughout this latter period.

The Quantity of Research: Altogether, in a variety of different studies with different purposes, we administered about 15,000 tests to Colombian pupils and about 1,550 tests to Colombian teachers, conducted six surveys of teachers to which a total of more than 5,200 responded, and conducted over 1,000 hours of focused interviews with Volunteers, teachers, and others associated with the project. In addition, we participated daily in the activities of the project.

Previous Publications: In addition to the final series of reports which this volume concludes, we published a number of reports for the Peace Corps on our research while it was in progress. A detailed list appears in the Introduction to this final series. These included 14 numbered interim reports; a compendium of the 10 interim reports dealing with the project's first year, including some added material; a review of our findings during the project's first 18 months; another review of our findings during the project's first 24 months; a special report on the final 1965 survey of over 1,800 teachers, with a separate supplement identifying schools having unusual difficulty in making effective use of the televised instruction; and a casebook of real-life examples of Volunteer problems that was used in the training of new Volunteers for the Colombia television project. All these documents are supplanted by this final series, which covers our research fully.

The Research Role of the Volunteers: Research on the ETV Project in any meaningful sense would have been impossible without the full involvement and generous cooperation of the project's Volunteers. They provided an immeasurable amount of help and information in informal ways; they submitted to what must have seemed like never-ending interviews and questionnaires; in some instances, they altered their work so that its impact could be better measured; they occasionally acted as our surrogates in the monitoring of tests; and they helped us reach teachers with our questionnaires in our surveys. Sometimes they were the objects of our study, at other times the means by which our studies involving others -- such as teachers or pupils -- could be completed. Whatever value our two years of research may have, it was only possible because of the Volunteers, and we are grateful to them.

Problems in Conducting Research on the Peace Corps Abroad: Conducting social research in a developing country on a Peace Corps project posed unusually trying problems. Some involved the Colombian schools, such as inadequate records for the sampling either of schools or teachers; complete unfamiliarity of teachers or officials with research techniques; non-uniformity of schedules, school hours, and instruction; and unlisted holidays. Some involved the society in a larger sense, such as the occasional unavailability of common office supplies; lack of repair service for office equipment; unreliable communication, especially telephone service; undependable transportation; electrical failures, which hampered printing schedules for research materials and made night work impossible when it sometimes seemed crucial; strikes and social protests, which disrupted communication and the transporting of research materials, and which sometimes made it impossible for anyone to reach our office; and the extraordinary number of public holidays (by actual count, Colombia is said to have the most holidays of any country in the world), which hampered the completion of work. Some involved Volunteers, for although general cooperation was excellent, sometimes a Volunteer felt there was a conflict between his job and the demands of research, and when this occurred he was understandably not always inclined toward a resolution favoring research. All in all, despite these problems for the conduct and control of systematic research, we were able to successfully complete all of our studies. However, such problems did require an amount of attention and the use of special techniques which would not have been necessary in similar studies in the U.S.

The Stanford Research Staff: The Institute's research team for the Colombia project consisted of Nathan Maccoby, professor of communication, who was the principal investigator; George Comstock, research associate at the Institute, who was the field director; and Patricia Comstock, who served as special study director and data analyst. Maccoby was in Colombia for three weeks in early 1964; for three months during the summer of 1964; for two weeks at the beginning of 1965; and for two weeks in the summer of 1965. He oversaw all phases of the research. George Comstock was in Colombia for the entire two years, from January of 1964 to January of 1966. He was directly in charge of all phases of the research. Patricia Comstock was in Colombia for a year-and-half, from May of 1964 through December of 1965. She participated in all phases of the research.

Non-Stanford persons who participated in the field study in Colombia include Pilar Santamaria de Reyes, our Colombian research associate who was appointed to assist us by the Instituto de Radio y Television, the semi-governmental agency in charge of broadcasting; Peter Gyfteas, a Peace Corps Volunteer who worked closely with us; and Elsie Leguiamon, who briefly preceded Mrs. Reyes as our Colombian associate. After working with us throughout 1965 in Colombia, Mrs. Reyes completed resident study for a Master's degree in communication at Stanford on a special grant arranged through Stanford, and has since become director of the television production in the ETV Project for Colombia, one of the two top Colombian ETV administrative posts.

Others who have been involved included W. Lee Ruggels, assistant professor in the School of Communication, University of Washington, who while a staff member of the Institute handled computer data processing; Monica Fong, research assistant, who helped analyze data and prepare these reports during 1966; and John Mayo, a Peace Corps Volunteer in the ETV Project who served as our correspondent, keeping us abreast of developments during 1966 after ending our personal field study in January.

Research secretary in Bogota was Lucia Cock de Leyva, and at Stanford, Hester Berson. We are indebted to both, for the volume and demands of our work imposed far more than the usual secretarial burden.

Research Report No. 1: The Project As a Whole -- Organization, Adaptation, and Expansion

We began our series with the story of the project's development so that the findings of our specific studies could be fitted into a broader framework. We followed every aspect and detail of the project closely during our two years of field study, and have been able to cover the first three years of the project, through the end of 1966, by keeping in close touch with the Peace Corps in Colombia after the field study ended. Among other things, we discussed the ETV Project's background and goals; its organizational structure; the television output it produced; the receiving network of schools it built; the numbers of Peace Corps and Colombian personnel involved, and their duties; some of its problems and adaptations to special Colombian conditions; its economics; and its timetable. On the whole, in reviewing the three years we found very impressive accomplishment and steady progress.

Background: The ETV Project has been a joint effort of the Peace Corps, financially assisted by the Agency for International Development, and Colombia. AID's role has been entirely financial. It has provided $575,000 for the purchase of TV sets and studio equipment. Although Colombia's role has grown, to date the Peace Corps has played the dominant part, providing not only critically needed personnel, but also a framework of organization, a conception of the job to be done, leadership, and impetus and drive. Colombia has provided some matching personnel, studio and transmission facilities, and provided some maintenance for equipment, including the TV sets.

Television, of course, is not equally feasible as a remedy for all ailing educational systems in the developing countries of the world. Much about Colombia, however, made it especially suitable for primary school instructional television on a large scale. These factors included: a national television network unused during the day, which could be readily converted to televising instruction over almost the entire country simultaneously; a public school system covering the first five grades with more than two million pupils; a national language, Spanish, common to more than 95 per cent of the population; and a national syllabus at least roughly adhered to by most schools, so that the same television would fit in well almost everywhere. The project has concentrated on the elementary schools because free, public general education for the population as a whole is almost completely limited to this level.

Like most developing countries, Colombia has a fierce need to modernize its educational system. The public school teachers generally are poorly educated and trained. For example, in 1963, before the ETV Project began, it was estimated that slightly more than half of these public school teachers had no degree of any kind, which in Colombia means they had not formally completed high school. Its schools are almost uniformly poorly equipped, with few, if any, books, maps, pictures, or instructional aids outside of blackboards. The most usual teaching method is rote memorization, and precise recitation, rather than understanding, is the conventional criterion of learning. The school age population has been growing rapidly, outstripping the training of teachers as well as the construction of schools, for Colombia's growth rate of about 3.2 per cent a year is one of the highest in the world and almost none of it is attributable to immigration by older persons (the comparable growth rate for the U.S. is 1.6 per cent, exactly half). These problems are aggravated by the fact that almost all of Colombia's public school children come from the lowest of social strata, for the lack of accrediting procedures has produced a tradition of relatively inexpensive private schooling to which almost everyone with any kind of regular income prefers to send his children (for example, a low-level white collar worker earning the equivalent of about $80 a month could afford a private school for his son); one of the ironic tragedies of Colombian education is that these popular private schools are generally no better than the public schools, but in this naive and status-conscious country they appear to many aspiring parents as the safer bet. This imposes an especially demanding challenge on the public schools, for it means that education is almost entirely their responsibility, for the homes are without cultural stimulation and the parents often semi-literate or illiterate. At the same time, this leaves the public school teachers in despair and without much hope for their pupils, for they cannot conceive of much beyond the poverty of their parents for them.

Prior to the Peace Corps project, Colombia had attempted to establish an instructional television system for its primary schools without outside assistance on two occasions. The first attempt was in 1955, the second in 1961. Both actually involved only a few schools, and a very limited amount of television. The immediate causes of their demise were political and economic. However, from a broader perspective it is possible to specify three major deficiencies, which the Peace Corps took account of in designing its program:

a) Resources -- both funds and competent, trained personnel -- were inadequate either for televising enough instruction to make much difference or for establishing television in a large number of schools. A meaningful program that could command attention and respect simply was never established.

b) Problems of the school and teacher in using the television were ignored. As our studies convincingly demonstrate, a television system that disregards the unusual demands made on the school in a developing country forfeits any real chance of success.

c) Firm governmental commitment and support were lacking. The government never committed itself fully to support and build the programs, and the Ministry of Education never fully joined with the Ministry of Communication, which was the principal innovator in both instances.

The Peace Corps has attempted to insure the success of the present project by providing enough resources for a large, although still realistic, program; by giving attention to television problems in the schools through a team of Volunteer school visitors and special training in television use for Colombian teachers; and by obtaining and building commitment and support from the Colombian government.

Goals: The immediate goal of the Peace Corps has been to improve elementary education by televising the "core" of instruction for the Colombian pupils, and by televising in-service training to Colombian elementary school teachers. Its long range goal is independent operation of an educational television system by Colombia, so that the country will have a powerful, flexible tool for public education at all levels. Already, in addition to the television for primary level education, it has televised some adult instruction in literacy and health, and it is hoped that it can offer other adult instruction, and courses at secondary and university level.

Organizational Structure: The project has had three principal concerns: a) television production; television utilization (use made of television in the schools); and TV set installation and maintenance. These are the three basic job assignments in the project. The latter two, of course, are both aspects of building a viable receiving network of schools.

In production, Volunteers have largely served as producers, with Colombians as television teachers and studio personnel. In utilization, because the Colombian government failed to provide 50 promised utilization counterparts, the Volunteers did the whole job until a scheme was devised by which Departments (states) appointed a token number of special supervisors for television schools. In TV set installation, Volunteers have worked with Colombian counterparts.

Formally, the ETV Project has consisted of two roughly mated organizations -- the Peace Corps' ETV group, and Colombia's. In practice, the head of the project has been the Peace Corps' ETV Project Director. He has coordinated all activities, including those of the two Colombian ETV executives, each of whom has been responsible for a particular sphere of ETV. One, a representative of the Ministry of Education, has been in charge of pedagogy; the other, a representative of the Ministry of Communication, has been in charge of television production. These two are equal and parallel in organizational position within Colombia's part in the project. Unfortunately from the viewpoint of efficiency and dynamic leadership, Colombia has not provided for any counterpart for the single Peace Corps' Project Director.

From the Colombian viewpoint, the television project is part of the government supervised but semi-autonomous Instituto Nacional de Radio y Television, which also presents commercial telecasting in the evenings. As a result, the project is governed by the Instituto's advisory committee of governmental appointees and officials, joined by the Colombian ETV executives.

Telecasting has been over the Instituto's network. For the first three years, Instituto studios were shared for commercial and educational production, with neither interest satisfied. Although almost two years behind schedule, new independent studios exclusively for ETV have been constructed by the Instituto, and were operating by the end of 1966.

The Televised Curriculum: The project's television record has been very impressive. It began with an ambitious schedule of 330 minutes weekly of television, which by the end of 1966 had doubled to 660 minutes weekly. About 90 per cent of this has been instruction for elementary level pupils; the rest has been in-service instruction for teachers (the figures do not include the pioneering television in adult literacy and health).

Each of the elementary level courses has had the same format: two 15-minute telecasts weekly, which the school teacher is expected to complement with pre- and post-television teaching in accord with a published Teacher's Guide. Each course has run for approximately a full semester, of which there are two each year (February-June, and July-November).

During 1964, 10 such courses were telecast each semester -- two for the first grade, one for the second, two each for the third and fourth, and three for the fifth. Subjects included Natural Science, Social Science, Mathematics, and Lenguaje ("language arts"). Telecasting was limited to the mornings, and this schedule adds up to 300 minutes weekly of elementary instruction.

For 1965, the schedule was increased for both semesters by 50 per cent -- to 15 courses and 450 minutes weekly of television. Telecasting was extended to the afternoons. Subjects remained the same except for the addition of Music, but a greater variety was offered in each grade. In addition, during the second semester of 1965, telecasts were repeated in some subjects to reach a larger audience with the same receiving facilities. For 1966, the schedule was increased to 16 courses in each semester. By this time, a total of 600 minutes weekly of elementary level instruction was being telecast.

In addition, there has also been the in-service television for elementary school teachers. Although the format has varied, this averaged 30 minutes weekly in 1964, and about 60 minutes weekly in 1965 and 1966.

Throughout, all courses have been video-taped for convenient scheduling and re-use. However, there has also been continual revision and improvement, so that the amount of new television produced each semester exceeds what is represented by totally new courses.

We can chart the achievement and growth in telecasting in this fashion:

-- The number of courses increased from 10 in 1964 to 15 in 1965 and 16 in 1966.

-- The minutes of elementary school television per week, exclusive of repeated telecasts, increased from 300 in 1960 to 450 in 1965 and to 480 in 1966. When repeats are included, the final figure rises to 600 minutes weekly.

-- Televised in-service training for elementary teachers averaged 30 minutes weekly in 1964, and 60 minutes weekly in 1965 and 1966.

-- The television day increased from mornings only in 1964 to mornings and afternoons in 1965 and 1966.

The television has been produced by two-person teams, consisting of a television teacher and a producer-director. The teacher has been responsible for on-screen teaching and course content, the producer-director for fashioning an acceptable television product. Throughout, the teachers have been Colombians. During 1964 and 1965, the producer-directors were all Volunteers. However, during 1966, nine of the 16 courses televised had Colombian producer-directors, trained and supervised by Volunteers. The work load has been heavy, with one of these teams sometimes producing as many as three courses concurrently, although one or two courses has been the more common load.

The Receiving Network: The project's record in building a receiving network of schools has been equally impressive. When the project was inaugurated in 1964, there were about 200 television schools with about 1,000 teachers and about 38,000 pupils, all in the capital of Bogota and the surrounding Department (state) of Cundinamarca. Three years later, by the end of 1966, there were about

1,250 television schools with about 8,500 teachers and about 350,000 pupils spread over seven other Departments.

We can chart this growth in this fashion:

-- The number of schools with television increased more than six times, from about 200 to about 1,250.

-- The number of teachers teaching with television increased eight-and-a-half times, from about 1,000 to about 8,500.

-- The number of pupils learning from television increased almost 10 times, from about 38,000 to about 350,000.

-- The number of Departments with televised instruction, in addition to the capital city of Bogota, increased from one to eight.

-- The proportion of Colombia's elementary school enrollment reached by television has increased from about two per cent to about 20 per cent.

Along with numerical growth has come an increase in efficiency, which can be seen by comparing the increase in teachers (eight-and-a-half times) and pupils (almost 10 times) with the lesser increase in schools (more than six times), each of which, with very few exceptions, represents one television set. As the project has expanded, a greater number of teachers and pupils have been reached by each television set because of concentration on larger schools with a full complement of all five grades (many Colombian schools include only some of the lower grades because of a heavy drop-out rate) and the repeating of telecasts, which permitted more classes in large schools to make use of the set.

Installation and maintenance of the TV sets has been largely done by Volunteers, although Colombian counterparts have worked with them. Schools have also been largely selected by Volunteers, although they have worked in close conjunction with local school officials whenever possible. In both spheres, however, Colombian participation has grown markedly since 1964, and by 1966 each Department was providing a special television supervisor who was responsible, among other things, for school selection, and a technician for the sets.

Every Colombian school is not equally feasible for television, and so the Peace Corps has developed certain basic standards. These include: a) adequate wiring; b) regular electrical service; c) a satisfactory viewing room; d) security against theft (which usually means a caretaker living in the school); e) most or all of the five elementary grades; and, f) explicitly expressed interest in using the television. Even so, most schools, even with intense interest, can barely meet all of these requirements at the start. Moreover, the rigid schedules and the changing of classes from room to room for viewing often completely disrupt the customary operation of the school. As a result, the utilization Volunteers must give close attention to a school at least throughout its initial semester to insure its successful adaptation to the new medium.

The following procedure has been developed by the Peace Corps for introducing television in an area: a) an agreement is reached at Department level, in which the Department must provide two special school supervisors for ETV to assist and later assume the responsibilities of the utilization Volunteers, one or more technicians, and a vehicle for ETV service; b) schools are carefully surveyed for prospective television installation; c) sets are installed; d) teachers are given a thorough orientation in techniques of teaching with television (they are supposed to provide 15 minutes of supplementary teaching before and again after each televised lesson) the class scheduling required, and set use and adjustment (few have ever used a television set before); and, e) after telecasting begins, the utilization Volunteers visit the schools regularly, advising on teaching techniques and acting as advisers, catalysts, and organizers in the solution of other problems -- such as imperfect viewing facilities, poor class scheduling, and such technical problems as set adjustment -- which affect television effectiveness. In every phase, including relations with top Department officials after the initial negotiations by Peace Corps staff, the Volunteers have played the major role.

Personnel: Our personnel figures are based on the number of persons working full time or its equivalent over a full semester, so that the number of individuals who have been involved in ETV is actually somewhat greater. Over the three years, from 1964 to 1966, the total number of Volunteers and Colombians has ranged from 99 to 140. The number of Volunteers has ranged from 66 to 88. The number of Colombians has ranged from 22 to 52.

The total during the first semester, when the project was inaugurated, was 99 -- 77 Volunteers and 22 Colombians. Of the initial

Volunteers, about two-thirds were in utilization, about one-fourth in television production, and the remainder were technicians for sets and equipment. Of the Colombians, all were in television production, either as television teachers or their assistants, except for three technicians.

As the project developed, the amount of Colombian participation increased. Although the total number of Volunteers rose from 77 in 1964 to 88 at the end of 1966, the proportion of the total ETV team that was Colombian increased from about 23 to about 37 per cent. More important than the growth itself is the increase in kinds of roles filled by Colombians. In 1964, the producer-directors for all the television were Volunteers; by 1966, a majority of the television was in the hands of Colombian producer-directors. Moreover, through agreements with the Departments, the Peace Corps had arranged for 13 Colombians to work with the utilization Volunteers at the school level by the end of 1966, although there were none at the beginning, in addition to increasing to 14 the number of Colombian technicians by the same device.

For the Peace Corps, the principal personnel shift over the three years has been an increase in the proportion of Volunteers working at the school level. From about two out of three in 1964 the ratio had increased to about seven out of eight by the end of 1966, representing increased recognition by the Peace Corps of the great number of problems needing attention in the schools if televised instruction was to be truly successful.

Some Major Problems: The Peace Corps encountered a variety of severe problems in attempting to establish an instructional television system in Colombia. We suspect that most of these would be common to any undertaking of this kind in a developing country. These have included a myriad of frustrations and difficulties in the successful and efficient production and transmission of the television -- breakdowns of studio and transmission equipment because of lack of expert operation and adequate maintenance, shortages of parts and auxiliary equipment, delays in importing parts and equipment, a scarcity of trained personnel for operation and maintenance, squabbles in the sharing and scheduling of education production with other (in this case, commercial) television, and low standards of studio operation; an enormously greater-than-expected number of problems in achieving successful television use in the schools, involving both teacher resistance to changing teaching practices and adjusting to the television despite great general enthusiasm for the idea of television, and non-teaching operational problems, such as initially inadequate facilities for really good television use, difficulties in fitting schedules to the television, and technical problems of set and power failures and even simple set adjustment; the recruiting of adequately trained Colombians at all levels and in all spheres -- production, utilization, and technical support; and disruption of the project's program by outside events, such as teacher strikes over salary non-payment and the fiscal management of the Instituto, which led to the halting of telecasting for over a month in 1966 while a manufacturer held equipment submitted for periodic maintenance to force payment of past due bills. Probably the most important single problem has been gaining full commitment and the implied guarantee of permanent financial support -- a common problem with large scale foreign-supported innovations in developing countries where so many ambitious locally launched undertakings have been seen to falter.

In all the areas open to Peace Corps influence -- production and transmission, utilization in the schools, recruitment of personnel, and commitment and support -- there have been steady, visible, and impressive gains since 1964. By the end of 1965, most of the production and transmission difficulties had been eliminated, and the new independent studios for ETV that were ready by the end of 1966 should place production on a par to that which would be possible in the U.S. Utilization in the schools, especially on the operational level, has steadily been improved, almost entirely through the efforts of the utilization Volunteers. More and better trained Colombians have been recruited to serve in the project, both in production and at the school level. And, as this successful recruitment would suggest, there has been an increase in commitment and support, both from the national government and its agencies for the overall operation of the project and at the Department level for supervising the schools in the receiving network.

Project Adaptations: One of the measure's of a project's viability is its ability to change in the face of new demands, and the Peace Corps has continually made changes in the television project to improve effectiveness. These have included the continuing revision of the televised elementary courses to meet teacher dissatisfactions; a shift in the organization of production to make the television teacher entirely responsible for content, so that he would be a real teacher with conviction and authority rather than a mere actor; the dropping of general interest programs (such as child psychology) in favor of courses extending over several weeks duration in subjects a teacher actually must teach (such as mathematics) for the in-service training of teachers by television; the more careful selection of schools for television use; the development of a thorough pre-television orientation program for the school teachers; and the placing of Volunteers in leadership roles throughout the country for the directing of the utilization program in their areas.

Two adaptations deserve special note. One is the shift towards the Departments for support of ETV. This is probably the single most important change in the project's operation during its first three years. It occurred because no central agency could be found to provide what was needed to maintain the receiving network at the school level. As a result, the Peace Corps turned to the Departments. In the program that has evolved, each Department, as a requirement for participation in the television project, is required to provide two special television supervisors to work with the utilization Volunteers and to assume their responsibilities when they transfer to new sites, at least one technician for servicing sets, a vehicle for ETV use, a Departmental ETV office, and an annual budget for these and other ETV expenses.

This maneuver has fitted Colombia's political and educational structure superbly, for it recognizes that Colombian schools are administered at the Department level (although the syllabus and general standards are set by the prestigious national Ministry of Education), that Departments may offer resources when the national government either cannot or will not, and that a multiplicity of working agreements offers both flexibility for local compromise in accord with special conditions and a safeguard against disruption from a single cause. It has also actively involved those directly responsible for the schools benefiting from the television service, and given the television support from the officials closest to the teachers. Moreover, it has taken advantage of Colombia's regionalism, by giving the Departments a voice in ETV and making possible competition between Departments over successful operation.

This program has had considerable success. It has increased involvement, participation, and support at the local level, and has made the improvement of television utilization in the schools -- because of local involvement -- easier for the Volunteers. It has permitted the transfer of responsibility for utilization to Colombians. Empirically, we have found that the appointment of Departmental television supervisors has dramatically increased the readiness of teachers to look toward Colombians, rather than the Peace Corps, in regard to ETV.

Interestingly enough, this Department plan has also increased national support, for a system has been developed for the national government to partly salary the special supervisors, and two similar national level supervisors have been appointed (although so far, they have served only in Bogota and the surrounding Department of Cundinamarca as surrogate Department supervisors, for television was introduced here before the Department plan was worked out).

Another major adaptation has been the expansion of the utilization Volunteer's role to include "school development" for ETV as well as help on teaching. Initially, the Peace Corps conceived of the utilization Volunteer as primarily a teaching consultant who would be primarily concerned with advising school teachers on the best techniques for use in teaching in partnership with television in the classroom. This simply did not fit reality. What happened was that the number of operational problems in the schools, wide in variety, was so great that they consumed much of the effort of these Volunteers. The Volunteers found they had to monitor every aspect of television use, and act as organizers, prompters, catalysts, and sometimes as the representatives of schools with higher officials to achieve the essential base of regular viewing under good conditions -- adequate physical facilities, the organization of the schedule around the television, and satisfactory television reception. Thus, the role expanded to include what, for the school, was analogous to "community development" for the village. Although this shift would have occurred in any case, it was furthered by the fact that few of the intiial group of utilization Volunteers had sufficient training in education prior to joining the Peace Corps to enable them to act as effective consultants. As it turned out, the Volunteers were not only effective in "school development" (as our research shows), but also made a great and essential contribution in this sphere to the success of the project.

Economics: Based on a UNESCO-sponsored study made by another Institute-directed team in the fall of 1965, we can estimate that the cost at that time per student hour of television was between 5 and 7.5 cents (the former involves calculating costs for personnel, including the Peace Corps', at Colombian pay rates; the latter takes account of the actual cost of Peace Corps personnel). We can also estimate the cost at the time of adding to the quantity of television delivered by adding a TV set at .8 cents per student hour, and by adding an hour of television at 1.9 cents per student hour (both with charges at Colombian rates). These are very low figures, made possible by the impressive scale of operation attained by the project at the time, both in terms of broadcasting and the size of the receiving network. In fact, the same UNESCO team studied three other television projects delivering the core of instruction in different parts of the world, and these were the lowest cost figures by far.

The Timetable: Originally, the Peace Corps had hoped to leave Colombia with a functioning educational television system within two years, ending its participation when the overseas service of the original group of ETV Volunteers was completed in mid-1965. Almost immediately after the project was underway in the field, however, the Peace Corps realized it would have to extend its participation if there was to be any chance of success at all. In retrospect, it is clear that the original timetables involved both an underestimate and an overestimate; it underestimated the problems that would be encountered, especially in building a working receiving network, and it overestimated the readiness and capability of Colombia to take charge of the project. At the present, the Peace Corps plans to continue its large scale participation at least through the end of 1968.

In our judgment, the extension of the timetable has been essential. If the original plan had been adhered to, we suspect that the gains and perhaps the project entirely would have disintegrated within a few months. On the other hand, the very definite progress since 1964 has justified completely further investment. One of the important lessons of this project is that an undertaking of this kind cannot simply be set up and abandoned in one or two years. Instead, it requires prolonged, assiduous effort if it is to have any chance of success.

Of course, if visible accomplishment alone were the criterion, the ETV Project could be said to be a resounding success. The Peace Corps and its Volunteers have performed a prodigious task. However, a program must also be evaluated in terms of its goals.

We cannot say that they have been achieved, but we can say that there has been significant progress.

The televised instruction, with the large receiving network built up by the Peace Corps, represents a new kind and quality of schooling for about one out of five of Colombia's elementary school pupils. Moreover, this impressive instructional television operation represents a solid foundation for further expansion. Although independent Colombian operation is still some time away, primarily because commitment and support is not yet adequate, we believe that the size and success of what the Peace Corps has built is likely to foster just the unqualified support needed. In this sense, what the Peace Corps has been engaged in is an adventurous demonstration project which promises a very rewarding eventual pay-off.

During our two years of involvement in the project, we concluded that there were two major conditions as yet unfulfilled that would be necessary for independent Colombian operation. One is further involvement of the Ministry of Education, which generally has left ETV in the hands of the Instituto, which is primarily an arm of the Ministry of Communications. The acceptance of television as a principal means of public education, in our opinion, depends largely on the full support of this ministry, for it has the dominant voice over the content and form of instruction in the country's schools. The other is a single, powerful administrator for Colombian ETV who could assume the duties of the Peace Corps ETV Project Director. A project of this kind requires leadership, coordination, and a voice in high places that is listened to. We are extremely sceptical over the prospects of successfully transferring authority to Colombia until such a position is created.

Research Report No. 2: The Project's First Semester -- Pupil Achievement, Teacher Attitudes, and the Work of the Utilization Volunteer

In our second report, we brought together all our studies bearing directly on the project's first semester of operation. The ETV Project was inaugurated in Colombia at the beginning of 1964, with the televising of elementary school instruction starting late February. The program began in Bogota and the surrounding Department of Cundinamarca with about 200 schools, with about 1,000 teachers and about 38,000 pupils, but by the end of this semester these figures had been almost doubled to about 360 schools, with about 1,800 teachers and about 68,500 pupils. During this semester, 10 elementary level courses were televised, each consisting of two 15-minute telecasts weekly, for a total television output of 300 minutes weekly. For the Peace Corps and its Volunteers, this was a period of great if harried accomplishment, many problems and frustrations, and extensive learning and adjustment as plans and expectations were adjusted to realities.

During this first semester, we conducted extensive research to learn as much as possible about this project in its initial, formative stages. Our purpose was to provide a basis for corrective policy-making, to compile a reservoir of information on early field problems in launching such a large scale project, and to give ourselves a foundation to guide us in making future research on the project as fruitful and useful as possible.

This report covers these first semester studies, and some others conducted later that were directly related to them. These studies include a field experiment on the project's initial instructional impact; a two-survey panel study of teacher attitudes and relations with Volunteers; interviews with Volunteers and teachers focused on the pattern of interaction that evolved in the Peace Corps utilization program; an examination of the Volunteer's concerns and experiences based on his reports of challenges, problems, and "critical incidents"; and follow-up studies on the effects of teacher and pupil experience with television on pupil achievement and on the sources of inequalities in Volunteer contact with teachers.

The Field Experiment: In the field experiment, the instructional impact on pupil achievement of the entire televised curriculum and the utilization Volunteer's consulting with teachers was assessed in the analysis of approximately 7,100 tests from pupils in 178 classes representing instruction under one of four conditions -- a) without television, b) with television only, c) with television and a restricted amount of help for the teacher from the Volunteer, and, d) with television and a full amount of help for the teacher from the Volunteer (as defined by normal operations at the time) -- in _each_ of nine televised elementary courses (because of testing problems with first grade children, results were not obtained for one course). Thus, we were testing the initial effectiveness of the Peace Corps television and of its Volunteers in helping teachers. The tests were given at the end of the semester over a two-week sample of course contents. Principal findings were:

1) When the data were analyzed overall and treated so that each course served as an equal representative of the project, they indicated that the project _had led to increased achievement by pupils_. This inference was permitted by statistically significant variation among the scores for all four conditions when examined together, and the trend of these scores -- which were higher in the three project conditions than in the "no television" baseline. However, none of the differences between individual conditions was great enough to achieve significance when taken alone, and it was _not_ possible to attribute superior pupil achievement to the counsel given teachers by the utilization Volunteer.

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2) When the data were analyzed separately for each course to provide more specific feedback, they indicated that two courses -- Natural Science IV (the grade) and Lenguaje II -- individually had led to increased achievement by pupils. For each, there was statistically significant variation among the scores for all four conditions when examined together, and those for the three project conditions were higher than those for the "no television" baseline, with the scores increasing progressively from one condition to another. For both, however, the only difference between individual conditions that was significant was between "television with a full amount of Volunteer help," representing the project at maximum effort, and the "no television" baseline.

3) Despite the many practical difficulties in the schools themselves in inaugurating the project which likely led to the loss of hours presumably ordinarily devoted to instruction, there was no evidence that the shift to televised instruction involved any cost in temporarily lowered achievement by pupils.

These results suggested that the project could not take its instructional effectiveness for granted. Even when variation among the scores for the conditions was statistically significant, actual differences were very small. In addition, despite the positive trend of the scores when the results as a whole were analyzed, in only two of the nine televised courses did results demonstrating significantly greater achievement emerge. Moreover, in neither the overall nor individual course analysis did the counsel given teachers by Volunteers lead to significantly greater pupil achievement than occurred among the "television only" pupils.

Our subjective observation of the Volunteers in the course of conducting the research led us to conclude that one of the major causes of this early lack of instructional effectiveness for the Volunteers was inaccurate and incomplete specification of the utilization Volunteer's role by the Peace Corps as that of teaching consultant. Contrary to expectations, he spent much of his time on "school development" simply to achieve regular viewing under satisfactory conditions. Also, because of lack of experience or training in teaching, he had no clear or firmly grasped body of knowledge or skills to communicate to the teacher.

As a consequence of these findings, we were led to focus much of our later research on the role and effectiveness of the utilization Volunteer. In order to avoid misunderstanding, we should probably add that by the end of our two years of study in Colombia we were thoroughly convinced that the utilization Volunteer fulfills an absolutely essential function in this kind of undertaking -- both in "school development" and in improving teaching methods.

The Panel Study: In the panel study, we surveyed the same group of teachers before and again at the end of their first semester of using television in the classroom. In order to learn of the teacher's perspective on the project, we analyzed their end-of-semester reports, and in order to learn about the dynamics of Volunteer-teacher interaction (for we measured contact with the Volunteer in the terminal survey) and changes in teacher preconceptions over the semester, we analyzed replies from both points in time. About 250 teachers were involved, including some from schools given special (less than optimum) treatment in the field experiment, but except when we were interested in the replies whatever the circumstances, the findings were based on the answers of slightly over 200 teachers from schools receiving ordinary treatment in order to fairly reflect the project's normal operation during the first semester. Principal findings were:

1) Marked differences existed among teachers in their contact over the semester with utilization Volunteers assigned to work with them, and this was true for teachers within a single school. In short, many teachers were left out of this Volunteer program. This suggested that the school was not the ideal unit for organizing such a consulting service if fairly equal contact for individual teachers was desired, as was then the Peace Corps' goal.

2) The Volunteers tended to choose to work more closely with teachers who initially had more favorable attitudes. This suggested that if guidelines were not set forth, practice would make policy in accord with personal whim.

3) Contact with the Volunteer had a favorable impact on teacher attitudes. This suggested that at the least the efforts of the Volunteer could help build a favorable foundation for achieving desired changes in teaching practices.

4) Most frequently cited on a checklist of possible inadequacies in Volunteer capability to help the teacher was that the Volunteer did not supply teaching aids and supplies, suggesting that extensive orientation of teachers on the utilization Volunteer's role was necessary if it were not to be misunderstood. The danger of such misunderstanding was highlighted by the finding that making such a complaint

was associated with believing that the Volunteer did not live up to his capability to help the teacher (this was not true for other checklist items). Language skill also was fairly frequently cited as insufficient for the Volunteer to give much help, emphasizing the perhaps obvious point that language is particularly crucial when a Volunteer must communicate constantly to a wide range of persons for brief periods, as the utilization Volunteer had to do with his teachers, rather than being able to establish rapport through long association while living in a community.

5) A majority of teachers at the end of the semester tended to perceive the use of television as increasing their status among officials, parents, and other teachers, with the majority decreasing in that order. This attitude provides a favorable basis for achieving teacher cooperation. However, the fact that the status benefits of using television were seen by the teachers as least among their working colleagues, and the finding that believing that television involves added work was inversely related to perceiving a status benefit among other teachers, suggested that this favorable attitude might be endangered unless the new duties associated with television were characterized as being different in kind rather than greater in quantity.

6) There was some disillusionment over the project among the teachers, indicated by significant negative shifts on several attitude measures. The negative shift was particularly marked in regard to the perceived effectiveness of the Volunteer. Although there might have been a downward adjustment of expectations under

any circumstances, this fall from grace of the Volunteer probably also reflects the same problems reflected in the field experiment results. The Volunteer occupied an inaccurately conceived role, which led to confusion and lowered performance, and inadequate preparation for advising on teaching. This outcome was a danger signal indicating that this aspect of the program needed reassessment. Other significant negative shifts occurred in regard to the belief over how much the pupils would like the new instruction, and the status television use would bring in the eyes of parents and other teachers. However, it should be noted that the numbers of teachers making relatively favorable replies to even those questions for which negative shifts occurred remained quite high at the end of the semester despite the shifts. Thus, in absolute terms at the end of the semester the attitudes of the teachers on the whole were fairly favorable.

7) The belief of the teachers that television could be a powerful tool for teaching remained strong over the semester. There was no evidence of a negative shift on this measure. Such a belief, like other favorable attitudes, provides a valuable foundation for gaining cooperation in changing teaching methods and other changes in practices made desirable by television. Given the many problems of this first semester, and the context of negative shifts in attitudes, the firmness of these teachers' belief in the power of the medium is an important finding. Interpreted broadly, it reflects a wish on the part of the teachers to step quickly into the twentieth century; and although this may be partly based on an indiscriminate faith in the magic of electronics, it can only be taken as a cause for optimism.

Volunteer and Teacher Interviews: In order to find out how the role of the utilization Volunteer had evolved during the first semester, we interviewed 30 utilization Volunteers in Bogota and Cundinamarca and 19 teachers in Bogota, *each* randomly selected from the group of teachers served by a different Volunteer. This gave us an in-depth view of this service program from the perspectives of both worker and client.

We found that most of the Volunteers either had found the day-to-day job of utilization different from what they had expected or that they had had no clear idea in advance of what to expect. This reflects negatively both on Peace Corps training and the Peace Corps' initial conception of their role. On the whole, they were surprised that they had to devote so much of their time to operational problems in order to achieve regular school viewing under satisfactory conditions, that they had to be so concerned with persuasion and the gaining of compliance from teachers to achieve the project's goals, and that the teachers were not more willing and eager to accept and use advice on teaching.

We found that most Volunteers felt considerable frustration in their work, especially in regard to imrpvoing teaching practices, although most felt they had brought about at least some desirable changes in the practices of a few teachers. Most felt that their effectiveness was hampered because they lacked experience or training in education, and many said that they did not feel that they were really capable of giving their teachers much useful advice.

We found considerable variation in the techniques and procedures used by various Volunteers in their work. Most of these seemed to have been developed entirely on an ad hoc basis, with very little forethought. This fact should not have been surprising, because their backgrounds and training had not equipped them with a set of ideas or the knowledge for solving their problems. Although they were concerned with reorganizing schools around television, and with persuading teachers to change their behavior, the Volunteers could give little systematic thought either to the school as an organization or the teacher as a target for persuasion. Thus in regard to "school development," although they knew what they wanted to accomplish, they lacked the conceptual skills and techniques for maximum effectiveness, and for changing teaching practices they largely lacked both the substantive knowledge and these more general skills and techniques.

As to the techniques the Volunteers did use, we found that some made use of the hierarchy in each school by working primarily through the principals, while others often unwisely skirted the principal and dealt directly with individual teachers. Some attempted to use time-saving group presentations and group consensus to reinforce changes in a school, while others never did so. Almost all spent much of their time simply observing teachers at work, and many, presumably doubting their own competence and fearful of losing teacher rapport, failed to follow this up by offering advice to improve what they saw. Division of time varied considerably from Volunteer to Volunteer, with some spreading their attention over a large number of schools and teachers, giving a little time to each, and while others spent whole mornings or more with one teacher or school. Although differences in ease of transportation played a part, this variation was primarily due to differences in what individual Volunteers found convenient or satisfying. Moreover, at the time televised instruction was only being given in the mornings, and because there were no guidelines to the contrary, many Volunteers devoted their afternoons to projects (many quite useful) outside the schools which they felt were more suited to their skills, or more enjoyable.

The interviews with the teachers filled out this picture, and altered it in one important respect. Of the 19 Bogota teachers, each representing the work of a different Volunteer, seven reported that they had had almost no contact with their Volunteer. This corroborated the survey finding that many teachers had been left out of the utilisation program. It also indicated that Volunteer reports cannot be considered an entirely accurate guide to worker-client contact, for the Volunteers' replies would not have given this failure the emphasis it deserved. Interestingly enough, a majority of those who had had real contact with their Volunteer expressed fulsome praise of his efforts to assist them in their first use of classroom television.

Volunteer Problems, Challenges, and "Critical Incidents": In reports from Volunteers in all spheres of the project (obtained by questionnaires) after the first few weeks on the job in Colombia on the major challenges they had faced and the problems over which they were most worried, we found a concern over gaining support and cooperation for the project from the Colombians at all levels. "Critical incidents" gathered at the end of the semester from the utilization Volunteers (by interview) on the problems they had encountered also indicated that during the semester winning support and cooperation from teachers and school officials had been a major part of their job.

__The Follow-up to the Field Experiment__: In a follow-up to the field experiment, we tested pupils in the classes of teachers which had been tested in a pre-test for the field experiment early in 1964 and again in early 1965 at a comparable point in the semester in order to learn if experience with television had led to increased instructional skill among teachers or increased ability to learn from television among pupils. Except for the passage of time and the pupils, everything at both times was the same -- the teachers, the television content, and the tests. This study was confined to one course, Natural Science V, because it was the only one that had not been revised for which we had an adequate body of 1964 data. Although we had results on 44 classes from 1964, only results for 10 classes could be obtained from both periods because of teacher transfers over the year.

The 1965 scores for these teachers' classes on the whole were slightly higher, but the increase over 1964 failed to achieve statistical significance. In addition, the only way that 1965 classes homogeneous in regard to ETV could be formed was by using exclusively pupils with a semester or more of prior experience in learning from television, so that improvement could not be unambiguously attributed to increased skill solely on the part of the teachers. When the scores for the few pupils in these classes who had had no prior experience in learning from television were analyzed separately, the scores tended to be lower than the television-experienced pupils in their classes, but not to a statistically significant extent.

We do not interpret these non-significant results as indicating that experience with television does not lead to increased instructional skill or ability to learn. In regard to teachers, they only indicate that such gains are hard won in innovative projects of this kind, and that such gains did not occur consistently for these teachers, at least as measured by pupil achievement. As our other data indicate, these teachers started television when efforts to improve their teaching, despite the large number of Volunteers involved, were weak, so the results reflect circumstances unlikely on their face to lead to much improvement. Unfortunately, constant changing of the televised curriculum prohibited repeating the design under other circumstances so that we don't have any sensitive measures of possible improvement. In regard to the pupils, the number in these classes without prior television experience was relatively small, and we take the near-significance of the results as highly suggestive that experience is associated with superior achievement.

The Follow-up on Volunteer-Teacher Contact: In a follow-up on the factors involved in the favoring by Volunteers of certain teachers for contact, in 1965 we interviewed Volunteers in an urban area where transportation was not a factor for their perceptions of teachers and their schools for teachers who, by the teachers' independent report, had had a high or low degree of contact with the Volunteers. We found some indication that favored teachers were those considered "good" by Volunteers, and that the teacher in a school in a "nice" neighborhood had a better chance of receiving attention, as did the teacher in a school where there were difficulties in achieving good viewing conditions. The favoring of "good" teachers and "nice" neighborhoods emphasized the need for guidelines for the Volunteer.

In concluding this report, we pointed out that during its first half year, the Peace Corps ETV Project accomplished a great deal in a relatively short time. We emphasized that in looking at the project through our research, it is important to recognize that the research implicitly accepts these accomplishments -- the televising of an ambitious schedule, and the building of a sizable receiving network of schools -- as a given. We warned that they should not be overlooked simply because they are obvious. It was understandable that the project encountered many problems. We say "understandable" because there was so much that was either new or relatively unfamiliar to the Peace Corps -- large-scale instructional television, primary education in Latin America (although about three-fourths of all Volunteers worldwide are in primary or secondary education in some way, mostly teaching, less than 20 per cent are in this field in Latin America, where community development is the typical Volunteer assignment), and the directing of the large team of utilization Volunteers as part of a single enterprise. Because of the nature of our research, it reflects many of these problems; if it did not, it would lack utility.

Research Report No. 3: Improving the Effectiveness of the Utilization Volunteer and the Utilization of ETV by the Colombian Teacher

During the second semester (July-November, 1964) one of the major research activities was an experiment in which the instructional effectiveness of three different kinds of utilization of televised lessons

-- or partnership teaching with television -- by the classroom teacher (his "motivation" and "follow-up") were compared. This was a product of our concern over increasing the effectiveness of the utilization Volunteer in improving teaching.

Theory and Method: The three experimental conditions were designated: 1) *Active Pupil Practice*, 2) *Expository*, and 3) *Ad Hoc*.

In *Active Pupil Practice* utilization, the teacher presented the "motivation" and "follow-up" (the 15 minutes before and again after each quarter-hour televised lesson that the classroom teacher was expected to provide as partnership teaching to the television) in the form of *questions*; pupil behavior was guided by instructing the pupils to answer the questions individually; and opportunity for practice of the *correct* response was provided by giving the correct answer immediately after the pupil's initial response.

In *Expository* utilization, the teacher presented the *same content material* in her "motivation" and "follow-up", but the presentation was in the form of *statements*, or a lecture, and pupil behavior was restricted by giving the pupils no opportunity to respond, thus making active practice of the correct response less likely.

In *Ad Hoc* utilization, the teacher presented her "motivation" and "follow-up" using the usual Guide material and whatever techniques she had developed.

The classes of 29 teachers of Natural Science IV and Mathematics V, with about 800 pupils, were the subjects. The teachers included approximately equal numbers of those who had had a full previous semester to develop utilization techniques and teachers new to television during the semester of the experiment. These were distributed equally among all conditions (those teachers were in Bogota and Ibague, respectively). For teachers in two conditions (Active Pupil Practice and Expository utilization) special written instructions and outlines or "scripts" for utilization were provided; teachers in the third condition (Ad Hoc utilization) conducted preparatory instruction to broadcasting and "follow-up" on the basis of the ordinary Teacher Guide material. In all conditions, teachers were coached and advised by utilization Volunteers. After four weeks, or eight telecasts in each subject, tests on the lesson content were administered to the pupils under Volunteer supervision.

Two principal hypotheses were advanced:

a) Active Pupil Practice would prove superior to Ad Hoc utilization, because of the insured a) exposure to course material, b) feedback as to correct and incorrect responses, and c) active practice of the material to be learned.

b) Active Pupil Practice would prove superior to Expository utilization because of insured a) feedback as to correct and incorrect responses, and b) active practice of the material to be learned.

No hypothesis was advanced as to the relative effects of Expository and Ad Hoc utilization, because the former insured exposure while restricting feedback and practice, while the latter permitted feedback and practice (if the teacher were skillful) at the possible expense of exposure to the material. However, precisely because of this, a modest (because based on a small sample) test of the effectiveness of the commonly induced kind of pupil response -- chanting of memorized material to cues provided by the teacher -- was made possible.

Results:

1) Active Pupil Practice pupil test scores were superior to those of Ad Hoc utilization for both Natural Science IV (p. < .005) and Mathematics V (p. < .05).

2) Active Pupil Practice pupil test scores were higher than those of Expository utilization, although the statistical criterion of the .05 level was not reached (for Natural Science IV, p. < .06; for Mathematics V, the results were in the expected direction, p. < .25).

3) The pattern of the results was the same both for teachers with a previous semester's experience in developing utilization procedures (in Bogota), and for teachers using ETV for the first time (in Ibague).

4) No systematic differences were discernible between Expository and Ad Hoc utilization pupil test scores.

Thus, one of the hypotheses (predicting the superiority of Active Pupil Practice over Ad Hoc utilization) received strong support, and one (predicting the superiority of Active Pupil Practice over Expository utilization) received mild, although not clear support.

Discussion: What do these findings mean? They would seem to indicate the following:

1) The classroom effectiveness of teachers can be improved through simple changes in their teaching techniques.

2) The changes required involve increased exposure to relevant material, feedback to pupils as to correct and incorrect learning, and active practice by pupils of the materials to be learned, all administered by the classroom teacher.

3) These changes can be implemented with equal effectiveness with teachers who have already developed "styles" or techniques of utilization and with teachers who are relatively new to the utilization of ETV.

4) The changes can be induced if appropriate printed materials and attentive coaching by utilization Volunteers are supplied.

5) The kind of pupil response such responding patterns customarily provided is relatively ineffective, since pupils with it did no better than those who were merely passively exposed to the material. Memorization, and rote recitation, are not true active practice, no matter how loud the shouting in the classroom.

The kind of material used to guide the teachers in the Active Pupil Practice (and in the Expository) conditions requires a special note. It was quite specific. It certainly did not permit the teacher a great deal of freedom in choosing her own technique or approach. It certainly would not satisfy a creative teacher. However, teachers who lack a sound general education and who have had only a small amount of specialized training for their jobs, are frequently able to employ new techniques only if the procedures are carefully spelled out. We feel that it is likely that some very specific material should be provided for some televised lessons in the Teacher Guides to assist such teachers. Not only might specific lessons be improved, but the teachers would be practicing a technique which they later might be able to apply on their own.

It should be emphasized that the heart of the *Active Pupil Practice* condition is just that -- active practice by the pupil of the material to be learned. Feedback is necessary, and unavoidably intertwined with it, to insure that what is practiced is indeed what should be learned. The use of a question-and-answer exchange is merely a *form* by which practice is brought about.

It might be thought that these results apply only to the learning of facts or skills. Although suth learning is important in any curriculum, and especially so in one in which there is reason to suspect that as much of it as might be possible does not occur, active pupil practice is equally important for the learning of concepts and for the ability to draw inferences from the general to the specific, and from the specific to the general. In short, it is equally important in learning how to think. The child who practices thinking, and receives feedback as to whether he is on the right track, surely learns to do so better than the child who is merely told how to think.

Research Report No. 4: *The Colombian Teacher and the Utilization Volunteer -- Making ETV Work in the Schools of a Developing Country*

In this report, we drew on our surveys of several thousand Colombian teachers who, with television sets installed in their schools, were regularly presenting the televised instruction of the Peace Corps ETV Project to their pupils, to focus on two important issues:

-- The problems brought to the Coloubian public elementary school by the use of the modern electronic medium of television for daily instruction.

-- The impact of the large number of Volunteers assigned to work with the teachers in the schools to promote the effective use of the television in solving these problems.

In addition, we have also presented a variety of other data from our surveys bearing on teacher communicatory behavior related to the television project, the teachers' desires for contact with the Volunteer, the teachers' ratings of the Volunteer's performance, and the amount of contact that occurred between teachers and Volunteers. Altogether, our survey data have enabled us to give an unusually detailed, informative, and useful account of the operation of instructional television in the schools of Colombia.

Methodology: The surveys were conducted at the end of each of the four semesters spanned by our two years of field study in Colombia in 1964 and 1965. For the most part, we have used data from our final survey, at the end of the second semester of 1965. This survey involved 1,884 teachers spread over the entire receiving network of the ETV Project. We have also drawn considerably from our survey at the end of the first semester of 1965, which involved 874 teachers, and to a lesser extent from our survey at the end of the project's inaugural semester, the first semester of 1964, which involved 232 teachers. These surveys have provided us with a very rich body of data with which to work, since they have provided us with information on teachers at various stages in the project's development, and in some cases -- such as in the surveys of 1965 -- on teachers with varying degrees of length of participation in the project. With only minor exceptions, the surveys were conducted by mail return questionnaires delivered personally to teachers by the utilization Volunteers, and the samples consisted of all teachers in areas where there were enough Volunteers for complete coverage.

Background: We have given a great deal of attention to the utilization Volunteer in the ETV Project -- so-called because he was assigned to work with teachers in television schools on the effective use of the new instructional medium -- for two reasons. One is that he represented the Peace Corps' major manpower commitment in the ETV Project. Between the inauguration of the project and the beginning of 1964 and the end of 1966, three years later, between 77 and 88 Volunteers at any one time were working full-time in the ETV Project. Of these, at least two-thirds at any time were utilization Volunteers, with the remainder serving in television production or as technicians installing and maintaining TV sets in schools or servicing studio equipment. The other is that we were eager to learn what impact and importance for an instructional television project in a developing country, where the mass medium of television holds tempting promise as a solution for educational needs, close and individual attention to the daily use actually made of the television in the classroom would have.

Our interest was whetted by our finding, as the result of a large field experiment testing the achievement of pupils during the project's inaugural semester, that the teaching advice imparted by the utilization Volunteer seemed to have little impact, and by our finding -- contrary to Peace Corps expectations -- that much of the effort of these

Volunteers had to be expended on the resolution of various problems brought to the schools by television.

The demands of these problems partly explained the lack of impact on pupil achievement, since concentration on them left little time for attention to teaching practices. Another reason was that few of the utilization Volunteers had any pre-Peace Corps experience or training in education, and as a result lacked both the knowledge and confidence to change teaching methods. This led to an expansion of the role of teaching consultant originally conceived for the utilization Volunteer by the Peace Corps to include "school development" in the interests of ETV. We also found in our research during the project's inaugural semester that attention from the utilization Volunteer helped to maintain and build favorable attitudes toward the new instructional program, an achievement important both for building a psychological foundation for the later changing of teaching practices and for gaining cooperation in solving non-teaching problems brought by television.

In this report, we focus on these non-teaching problems, which we suspect would be common to the introduction of televised instruction in any developing country, and the effectiveness of the Volunteer in dealing with them. We have asked: What were these problems? Was the Volunteer -- whose role might be filled by other kinds of personnel in some other instructional television project -- able to make any difference in solving them?

Problems Disrupting Television Use in the Schools: In order to measure the problems precisely, we constructed a 14-item television problem scale covering all the kinds of problems Volunteers, teachers, and other Colombian school officials reported encountering in connection with television. The primary basis for this scale were over 300 "critical incidents" collected from the utilization Volunteers, each representing an actual problem with which the Volunteer had had to deal in his work in the schools. This scale was included in both of our 1965 surveys.

By factor analysis, we found that the problems could be roughly classified as involving physical facilities, school organization around television use, and technological aspects of television use. Problems of physical facilities included: a) insufficient seating in the television room, b) overcrowding in the television room, and c) lack of darkness in the television room. Problems of school organization included: a) lack of time for "motivation" and "follow-up" teaching; b) conflict between the television and scheduled recess; c) interference with television learning from outside noise; d) confusion and loss of time in the school as the result of the room changing necessitated by television (in most cases there was only one TV set per school); and, e) problems of pupil discipline attributed to television. Problems of technology included: a) inadequate sound reception; b) difficulties in TV set adjustment; c) TV set failure; and, d) electricity failures. The two remaining problems in our 14-item scale could not be classified in these categories. They included conflict between the television and scheduled religious activities and TV set placement. Although we were readily able to place most of the problems as involving physical facilities, organization, or technology, the factor analysis also indicated (through generally low loadings and low totalities of item variance encompassed by the extracted factors) that we should consider each problem as independent.

The survey measurements showed the occurrence of many of the problems to be *very high*. With one exception, the results for both 1965 surveys were about the same. We found that the 874 teachers in the first survey and the 1,884 teachers in the second survey reported being disturbed by the problems to this extent (percentages are for the first and second semester surveys of 1965, in order):

In regard to *physical facilities*: About *four out of 10* said there were insufficient seats in the television room (44.3 and 39.1 per cent). About *one out of three* said there were too many children for undisturbed viewing, or overcrowding (35.5 and 27.2 per cent). About *one out of three* said the television room was not dark enough (30.0 and 33.1 per cent).

In regard to school *organization*: About *one out of four* said there was insufficient time for "motivation" and "follow-up" (26.1 and 25.2 per cent). About *one out of six* in the first survey and about *one out of three* in the second survey said that the television conflicts with recess (16.5 and 32.8 per cent); this is the exception to consistency between the surveys, and it occurred because the repeating of telecasts during the second semester increased the opportunity for conflict. About *one out of five* said there was interference from outside noise (19.6 and 19.7 per cent). About *one out of three* said there was loss of time and confusion because of room changing (36.4 and 32.8 per cent). Only about one out of 20 said there were discipline problems caused by television (6.5 and 5.4 per cent); unlike the others, this was clearly a relatively unimportant problem generally.

In regard to television technology: About one out of four said sound reception was inadequate (30.8 and 25.5 per cent). About one out of five said the adjusting of the TV set was a problem (24.4 and 20.1 per cent). About one out of six complained of TV set failure (16.4 per cent in both surveys)/ About one out of three said that the electricity had failed (37.1 and 38.9 per cent).

In regard to the two other problems: Fewer than one out of 10 complained that the television conflicted with religious activities (8.1 and 7.7 per cent). And fewer than one out of 10 said that the TV set was not properly placed in the television room (7.1 and 7.6 per cent). Both of these, then, were relatively unimportant problems.

For anyone contemplating the up-grading of education in a developing country simply by televising instruction and installing TV sets in his country's schools, these are disturbing results. If we dismiss the three low frequency problems (discipline, conflict with religious activities, and TV set placement), and even if we consider conflict with recess more as a complaint than a true problem (an argument also applicable to conflict with religious activities), we are still left with 10 problems each of which disturbed between one out of six and four out of 10 teachers seriously enough for them to make a report on our questionnaires. Problems were very frequent in all classifications -- physical facilities, school organization, and television technology.

These findings suggest that the best televised instruction in the world, as measured by its instructional and esthetic qualities, would falter at the point of reception in a developing country unless attention is given to the problems television brings to the school. What is most disturbing about these findings is that such problems could easily go undetected without some system of feedback from the schools and a willingness to think of televised instruction as involving more than mere broadcasting.

These findings amply illustrate the task facing the Volunteer in "school development" for instructional television. Taken by themselves, they also give ample evidence of the importance of providing for close attention to what happens in the school in an instructional television project. We will now turn to our findings on the impact of the utilization Volunteer in solving these problems. We found that he had a considerable positive effect, which means that the count of these problems we have given is less than it would have been without such a person. As a catalogue of the difficulties which are likely to beset television in the schools of a developing country, then, our figures actually represent an underestimate.

What Volunteer Help Meant: To help us assess the impact of the Volunteer, we asked the teacher to tell us how much help the Volunteer had given him in using television in his classroom teaching. The possible replies were "great help," "some help," "a little help," and "no help." The measurements on this variable -- help given by the Volunteer -- provided us with the key for investigating the effectiveness of the utilization Volunteer.

In our final survey of 1965, we found that in the area undergoing its introduction to television, where intensity of Volunteer attention was at a peak, 51.7 per cent of the teachers replied "great help," 33.3 per cent replied "some help," 7.0 per cent replied "a little help," and 7.6 per cent replied "no help." By themselves, these results at best told us that a bare majority of the teachers felt they received "great help" from the Volunteer during the introduction of television, but not much else. Without some sort of external criterion, the evaluation of such findings as favorable or unfavorable is simply a matter of opinion. However, by looking at the data for areas introduced to television in the two preceding semesters, where intensity of Volunteer effort was less, and at data for the area introduced during the project's inaugural semester, which by the end of 1965 was receiving a relatively minimal amount of attention, we found that help was directly related to intensity of Volunteer effort in an area. Thus, the replies for "great help" were 51.7 per cent for the high intensity of attention area, above, but only 35.8 for the area of intermediate intensity, and a low 24.2 per cent for the area of minimal intensity. This indicated that the teachers' reports on help received from the Volunteer actually represented differences in Volunteer behavior, which differed among these three areas simply in regard to the amount of attention received by teachers in each.

When we broke down the replies for the total sample on help by actual individual contact with the Volunteer, we found the same trend. Help received seemed to be directly related to contact -- the more contact, the more help. The report of "great help" among teachers conversing with the Volunteer twice a week during the semester was 51.5 per cent; among those conversing once a week, 59.0 per cent; among those conversing once every two weeks, 51.3 per cent; among those conversing less than once every two weeks, only 42.2 per cent; and among those conversing rarely, a mere 24.3 per cent. Except for the slight rise at the beginning of the scale (for "once a week"), of no relevance to our present interest, the data are completely clear-cut: contact led to help, as the extremes dramatize (51.5 per cent vs. 24.3 per cent). This further bolsters the conviction that help, as reported by the teachers, actually represents an aspect of the Volunteer's behavior, and not simply a meaningless, conforming reply.

We next broke down the occurrence of the 14 problems by degree of help received from the Volunteer. The purpose was to determine whether the Volunteer's help actually had any benefits for the teacher in regard to the problems brought by television. *What we found constitutes a major finding in regard to Volunteer effectiveness*: *There was an overwhelmingly convincing association between Volunteer help and the minimization of problems*. *The evidence was completely consistent with the belief that the utilization Volunteer had dramatically enhanced the successful functioning of instructional television in Colombia*.

Of the 14 problems, 13 were shown to decrease significantly as a function of help from the Volunteer. The sole exception was conflict with religious activities, one of the problems whose general occurrence was so slight that it could not be considered to be of much general importance (and which, unlike most of the other problems, may simply have reflected hostility toward the program since its solution would only have required the tailoring of schedules by the teacher). Of the 13, the relationship was highly significant in 11 of the instances (p. < .001, two-tailed); in the others, statistical significance was at a lower but nonetheless convincing level (p. < .01 and .05, two-tailed).

The consistency of the results was striking. In 10 of the instances the trend over the four degrees of help ("great help," "some help," "a little help," and "no help") was progressive, with problems increasing with each step as help decreased. In the other three instances, the deviations from a progressive trend were minor and of no consequence.

The importance of Volunteer help was particularly noteworthy for eight of the problems. This can be illustrated by comparing the differences between problem occurrence for the two extremes of help -- "great help" vs. "no help." These figures are (the per cent of problems for "great help" comes first, followed by that for "no help"; the higher the per cent, of course, the greater the occurrence of the problem): insufficient seats (34.9 vs. 54.0); overcrowding in the television room (24.3 vs. 39.2); the television room not being dark enough (22.9 vs. 51.1); insufficient time for "motivation" and "follow-up" (20.3 vs. 39.6); confusion and loss of time from room changing (23.1 vs. 48.7); poor sound reception (18.3 vs. 50.0); TV set adjustment (14.8 vs. 30.2) and TV set failure (10.9 vs. 25.3). For these problems, all generally quite frequent and at their face value quite important for the effective functioning of instructional television, the increase for "no help" over "great help" ranges from about 60 per cent to well over 100 per cent. These problems come from all three of the broad problem classifications -- physical facilities, organization, and television technology.

The impact of the Volunteer in regard to some of the 13 problems whose disruption was inversely related to his help may be confusing if the scope of the Volunteer's activities is not understood. The most glaring example is electricity failure. Ordinarily, this kind of problem, related either to school wiring or local power service, might seem to be completely beyond the influence of the Volunteer. However, although this was not a problem on which he had a dramatic impact over the entire sample, this was often far from the case. In the ETV Project, the utilization Volunteer acted as a catalyst, an organizer, a coordinator, a prompter, and, when necessary, a representative of the school with higher officials. Often, in regard to electrical power for television, he was instrumental in obtaining repairs to the school or crucial changes in the local scheduling of power service (which often is limited to certain hours of the day in rural areas).

Since in the final 1965 survey we were dealing with a highly nonhomogeneous sample in regard to time of entry into the ETV Project, intensity of Volunteer effort in the various areas in the receiving network at the time of the survey, and frequency of actual contact with the Volunteer on the part of the teacher, we were concerned that our findings on Volunteer help might be artifacts of the composition of our sample. Under the circumstances, it would be quite reasonable to suspect that the high occurrence of problems for the lesser degrees of help could be explained by the presence of large numbers of teachers from areas receiving intermediate and low amounts of Volunteer attention generally (where help also would be less), or by the presence of large numbers of teachers having relatively little contact with the Volunteer which these areas contributed to the sample (for whom help also would be less).

If so, this would muddy the issue considerably. Of course, we might still be able to say that intensity of effort in an area of contact was associated with reduced problems, but we would not be able to separate these (or help) from recency of entry into the television program. As a result, there would remain the quite plausible possibility that the smoother functioning of the program in the schools was not attributable to assistance given personally by the utilization Volunteer, but to special characteristics of the newer areas or (even more likely) to the ever-improving operational practices of the ETV Project -- more complete pre-introduction orientation of teachers, better school selection, greater assistance from local officials, and the like.

As a result, we subjected our data on the impact of Volunteer help to further rigorous scrutiny. We did this, in effect, by examining the effects of help on the occurrence of problems while we held constant general intensity of Volunteer effort in an area (roughly synonymous with time of entry into the program) and individual teacher contact with the Volunteer. In neither case did we find anything to cause us to modify our findings on the impact of the Volunteer.

We found that Volunteer help reduced problems regardless of the overall level of intensity of Volunteer effort in area (or time of entry into the program), which strongly increased our confidence that the relationship found between help and reduced problems is a true one.

The finding that Volunteer help reduced problems regardless of the degree of actual contact had the same effect, and also indicated that help can be considered apart from contact and (from a more technical viewpoint) can be justifiably used as a measure of Volunteer impact.

It will be recalled that we found that for the total sample help increased with actual contact. We subjected this finding to the same kind of scrutiny by breaking down the data by intensity of Volunteer effort for an area as a whole, as above. What we found was that Volunteer help increased with actual contact within each of the three breakdowns (high, intermediate, and low overall intensity of effort, ranging from most to least recent entry into the program). This indicated that contact can be considered an important determinant of help, although, as suggested previously, the Volunteer can offer some help even when contact is slight.

Teacher Desire for Volunteer Attention: Turning to findings on other issues, we found that teacher desire for more frequent contact with the Volunteer than he had had during the past semester was inversely related to actual contact. That is, those teachers who had had relatively little contact were especially demanding of more contact. We also found that teachers with relatively frequent actual contact overwhelmingly wanted at least as much in the future. In addition, we found that the demand for more frequent contact increased as the amount of help received decreased. That is, teachers who had received relatively little help were especially demanding of more contact. The broad implication of these findings is very high teacher demand for the utilization Volunteer's services.

Teacher Communication About ETV: In addition to the data on school television problems and the performance of the utilization Volunteer, we also presented some findings on teacher communicatory behavior related to the Peace Corps television project. These were of two kinds. One concerned the teachers' preferences as to communicatory targets for comments, complaints, and suggestions about the television program. The other concerned the teachers' actual regular communication about the program.

In measuring the teachers' preferences as to communicatory targets, we were actually measuring their perception of who had a meaningful say in the operation of the project. What we were finding out was who the teachers looked to when they were concerned in some way about the new instruction.

At the end of the project's inaugural semester in 1964, an overwhelming majority of about 85 per cent of the teachers named the Volunteer. What was equally striking at the same time was that very few named a Colombian person or agency. The highest figures were for the Instituto de Radio y Television (the semi-official agency under whose auspices broadcasting took place), with about 13 per cent; the district school supervisor, with about 12 per cent; and the school principal, with about 11 per cent. The gulf in preference between the Volunteer and these Colombian targets was enormous. It was clear that at this time the teachers almost entirely conceived of the ETV Project as a Peace Corps enterprise, a possibly gratifying circumstance, but not one especially suggestive of success in making the television project a Colombian undertaking, as the Peace Corps eventually wished to do.

By the end of the project's fourth semester, the final semester of 1965, the picture was very different. The majority naming the Volunteer had dropped to about 62 per cent. More important, a new Colombian official whose post had been developed in the interim, the special Department level school supervisor for instructional television, now was a firm second with about 46 per cent. In addition, the naming of other Colombian persons and agencies rose dramatically. The Instituto de Radio y Television now received about 24 per cent; the district school supervisor, about 26 per cent; and the school principal, about 26 per cent.

With the 1964 figures as a standard, these 1965 results clearly represent an impressive gain for the Peace Corps in making the instructional television program a Colombian undertaking. Of course, it must be recognized that the Volunteer is always likely to rate fairly highly in absolute terms in this kind of measurement as long as he is giving such direct attention to schools on behalf of ETV. What is really noteworthy is the great shift toward Colombian figures. There was a marked increase in the readiness of the teachers to look toward Colombian persons and agencies. In particular, these 1965 results reflected considerable success for the Peace Corps with the device of arranging for Department level school officials to be responsible for television in the schools, an adaptation on the part of the Peace Corps to Colombia's regionalism and the failure of the national government to provide school level support.

In measuring the teachers' actual communication about the television program, we were simply interested in the communication generated by this educational innovation. We found that the teachers said they conversed regularly about the new program to this extent in our final 1965 survey (whose results on this point were about the same as for the other surveys): about 77 per cent with other teachers in their own school; about 56 per cent with their school's principal; about 45 per cent with teachers in other schools; about 31 per cent with friends; about 24 per cent with the district school supervisor; about 19 per cent with the special Department level school supervisor for ETV; and about 17 per cent with the parents of their pupils. Given the impact of television on the school's operation, we were not surprised that regular conversation was most frequent with their fellow teachers. However, we were favorably impressed with the figures for teachers in other schools, friends, and parents, for we suspect that much of this communication about an education topic would not have take place without the television project. In short, we see these results as indicating the generation of considerable educational discussion by the ETV Project, a definitely desirable by-product.

Of course, the figures for the special Department level television supervisor are relatively low because there were only 13 of these officials for the approximately 925 schools with 7,000 teachers in the program at the time, and opportunity for discussion was limited and largely a function of proximity to the Department capital where the official was headquartered. Given that only about 19 per cent conversed with him regularly, the fact that about 46 per cent, more than twice as many, named him as a target is even more impressive evidence of his success as a means of encouraging the teachers to look toward Colombian figures in regard to ETV.

We also investigated whether the help given by the utilization Volunteer might have a hidden liability by decreasing the likelihood that the teacher would look toward the special Department television supervisor in regard to ETV. We tested this by examining data from the area that had been introduced to television during the semester covered by our final 1965 survey. This promised the best data for this purpose for two reasons: as the latest addition to the project, the perception of the supervisor's role could be taken as more typical of what could be expected, and as the teachers were receiving generally intensive attention for the first time, they were maximally susceptible to any side-effects. What we found was that help from the Volunteer actually facilitated orientation toward the special Colombian television supervisor: teachers who had received "great help" from the Volunteer were significantly more inclined to name the supervisor as a communicatory target than those who had received a lesser degree of help. Presumably, this occurred because of the information given the teachers about the project and the greater involvement their attention brought about. In practical terms, what we discover is that help from the Volunteer tends to bring teachers into the new televised program, and when Colombian officials are available within this project on whom they can focus, they will do so.

Two Case Studies: In addition to our broader investigation of the impact of the utilization Volunteer, we also used our survey data to formulate two case studies bearing on his effectiveness. In one, we focused on Ibague, capital of the Department of Tolima. Television was introduced here during the second semester of 1964, the second semester of the project's operation. At the end of this introductory semester, the team of utilization Volunteers was transferred to new sites. In our survey on the following semester, the first semester of 1965 and Ibague's second semester of television, we found that the occurrence of problems here was much higher generally than for the country as a whole. A team of Volunteers was reassigned to Ibague, and with our measurement of problems for the second semester of 1965 we were able to examine the impact of this intensification of Volunteer attention.

What we found was that two important problems generally shown to be reducible by Volunteer help decreased significantly. One was overcrowding in the television room, which fell from 59.0 to 42.2 per cent, a decrease of almost 17 percentage points ($p. < .001$, two-tailed). The other was confusion and loss of time from room changing, which fell from 69.7 to 48.5 per cent, a decrease of about 21 percentage points ($p. < .001$, two-tailed). The first concerned physical facilities, the second organization around television use. This further added to our evidence that the utilization Volunteer can make a very real difference in the success with which instructional television operates in the school.

In the other case, we focused on Medellin, capital of the Department of Antioquia. Television was introduced here during the first semester of 1965. At the end of this semester, the team of utilization Volunteers was much reduced as Volunteers were transferred to new sites. By putting together our data from this semester of intensive Volunteer attention and from the following semester of reduced Volunteer attention (the second semester of 1965), we can assess whether at this time withdrawal of Volunteer attention led to an increase in problems.

We should add that by the time television was introduced in Medellin the introductory procedures had been much improved over those employed in Ibague (although we cannot say that Ibague regressed after Volunteer withdrawal, for we have no comparative figures on its initial semester). There was more thorough, systematic, and comprehensive orientation of teachers prior to the beginning of television; there was better, more demanding selection of schools (on the basis of facilities and willingness to cooperate); the office of the Department television supervisor was more fully developed (it had been first tried with the inauguration of television in Ibague); cooperation with all local school officials was on a firmer basis; and the Volunteers, in their third semester, were at their peak of experience (shortly after the end of this semester, the term of service of the inaugural ETV group would end).

What we found was extremely encouraging from the viewpoint of project operation. There was absolutely no evidence that problems increased after Volunteer attention dropped. What this suggests is that with a sound introductory program, television can be sufficiently firmly established so that continuing intensive Volunteer attention is not necessary to maintain what has been achieved. Of course, we should note that conditions were relatively favorable for ETV in Medellin, since it is a prosperous and progressive commercial city with good electrical service, quite well-equipped schools, and fairly zealous educational officials. In other circumstances (for which we have no data), the outcome might be different.

Teacher Rating of the Volunteer: We also reported on the teachers' ratings of the Volunteer on two counts -- the quality of the Volunteer's advice, and the adequacy of his preparation. In our final 1965 survey, we found on quality of advice that about 48 per cent felt the Volunteer's advice was "good and practical," about 31 per cent felt it was "impractical because equipment and resources were lacking," about 14 per cent felt it was "unclear," about 5 per cent felt it was both "impractical and unclear," and about two per cent felt it was simply "no good." When we broke down these replies by degree of help given, we found marked differences that give some insight into why the Volunteer sometimes fails to be helpful. Among teachers receiving "great help," about 67 per cent said that the Volunteer's advice was "good and practical," compared with only about 33 per cent among those receiving lesser degrees of help. The difference was primarily attributable to sharp rises in the two relatively specific complaint categories, both in regard to impracticality (about 25 per cent among teachers receiving "great help" vs. about 36 per cent for the others) and lack of clarity (about 4 per cent among teachers receiving "great help" vs. about 21 per cent among the others), rather than in the blanket "no good" category. In short, teachers found that the Volunteer could not help them when his advice failed to take into account the feelings of the teacher about the limited resources available or was simply too vague and unspecific for action.

In the same survey, we found on Volunteer preparation that about 51 per cent complained that the Volunteer should know more about the problems of the Colombian school teacher, about 45 per cent complained that the Volunteer should speak better Spanish, and 21 per cent complained that the Volunteer should know more about teaching practices. Again, differences appear when we break down the replies by degree of help received. Teachers receiving less help were more critical on all three counts. Among those receiving "great help," about 44 per cent complained about knowledge of the Colombian teacher's problems, vs. about 55 per cent for teachers receiving less help; for Spanish, the comparable figures are about 36 per cent ("great help") vs. about 50 per cent (less help); for knowledge of teaching practices, they are about nine per cent ("great help") vs. about 27 per cent (less help). Perceived deficiency in all of these areas, then, seemed to adversely affect the Volunteer's capability to help the teacher.

The Actual Amount of Volunteer Attention: We concluded the report with a thorough analysis of the actual degree of contact that occurred between Volunteers and teachers. Contact, of course, has great importance since it is a necessary condition for help, and because help increases with greater contact.

One of our major findings was that as a project of this kind grows, its power to expand and serve its teachers declines unless the number of utilization Volunteers increases. This occurs because each new area absorbs additional Volunteers in administrative and coordinating positions, and because in each area some Volunteers generally remain to work full-time in schools to maintain and further expand the receiving network on a more limited basis than during the area's introductory semester.

We also found that a fairly sizable number of teachers were largely ignored even during the relatively intensive introductory semester. In the area being introduced to television in the survey for the first semester of 1965, 32 per cent of the teachers reported conversing with the Volunteer "rarely" and 19 per cent of the teachers reported that the Volunteer visited their school "rarely." In the area being introduced to television in the survey for the second semester of 1965, 40 per cent reported conversations, and 20 per cent reported school visits, as occurring "rarely." Given the scale by which we measured contact, "rarely" means once a month at the very maximum, and in most instances probably less, so that the degree of contact with these teachers really was slight.

This suggested that the distribution of Volunteer contact requires very close attention, both on the part of staff and Volunteers, for attention to one teacher or school, with the number of Volunteers available, is at the expense of attention elsewhere. This also suggested that attention should be given to the development and use of time-saving procedures that would permit the Volunteer to communicate to more teachers with the same expenditure of time, such as group presentations. These figures occurred with about 12 Volunteers to introduce television to somewhat more than 200 schools with about 2,000 teachers, indicating that a ratio of one Volunteer to about 17 schools is barely adequate.

We also found that attention to a school did not guarantee equal attention to all teachers in a school. One implication of this is that when individual contact with teachers is desired, the use of the school as a unit for organizing work is likely to be deceptive. This also led us to observe that while contact with only the principal or a few teachers may be adequate for ameliorating certain types of operational problems (physical facilities, organization, and technology), it is extremely unlikely that teaching practices can be changed unless there is actual communication with the teacher. With so much time given to operational problems, and a limited number of Volunteers, this tends to strengthen the argument for increased use of group procedures to save time. It also shows that the opportunity to affect teaching practices has actually been very slight, even in schools receiving considerable attention.

We also noted that the figures on contact for areas being introduced to television were not descriptive of the entire project at any time, for contact would be less in other, previously introduced areas. For example, in our final 1965 survey, we found that as we moved from the new areas to those with an intermediate amount of attention (introduced to television during the preceding two semesters) and finally to the areas with a low amount of attention (introduced to television during the project's inaugural semester), the report of rare conversations rose from 40 to 49 to 76 per cent, and the report of rare school visits rose from 20 to 40 to 72 per cent. It is not surprising that contact was relatively infrequent for these previously introduced areas, for they had over 1,000 schools, and of the total of 47 utilization Volunteers in the country at the time, 12 were in new areas, and nine were in coordinating positions, leaving only 26 Volunteers to serve them.

Given the limits so far on the power of the utilization Volunteer to change teaching practices, this low degree of contact throughout the project generally suggests that there would be a worthwhile task for added numbers of utilization Volunteers to concentrate on this goal. We should also add that although our data show clearly that the utilization Volunteer can reduce television problems in the schools, the same data also show that such problems remain far too frequent for complacency. This, too, suggests that there would be a useful task for added numbers of Volunteers. In any case, the data on contact leads one to question whether the number at the end of 1965 was sufficient.

Research Report No. 5: The Day-to-Day Job of the Utilization Volunteer -- Structure, Problems, and Solutions

In this report we examined the activities of the utilization Volunteer in depth through "critical incidents" and case studies. Our purpose was to better understand his role and its actual structure, how he worked, the problems he encountered, and how he solved them.

Methodology: The "critical incidents" consisted of 337 descriptions of problems encountered by the Volunteers in their efforts to make instructional television effective in the schools as recorded daily by the Volunteers themselves in "problem diaries." The case studies consisted of the records of how 13 schools adapted to television over a semester compiled by the Volunteers working in these schools. Thus, the incidents gave us a broad sampling of problems, and the case studies gave us a more longitudinal view.

Both were collected during the first semester (February-June) of 1965, which was the ETV Project's third full semester of operation. By this time, the Peace Corps and the Volunteers in ETV had had a full year of experience with instructional television in Colombia on which to base operations, and the data constitute a fair and accurate representation of the day-to-day job of building a receiving network for a project of this kind.

What "Critical Incidents" Told About the Volunteer's Role: In analyzing the "critical incidents," we tested the validity of the initial conception of the utilization Volunteer's role, held when the ETV Project was inaugurated in Colombia at the beginning of 1964, that he would be primarily an educational consultant who would work mostly with teachers individually to improve teaching methods. We found this picture to be incomplete. Moreover, we found the missing portion to have implications both for Volunteer recruitment and training, and for project planning and operation.

We found that most of the problems confronting the Volunteer concerned successfully *adapting the school* to the new demands imposed by using television on facilities and scheduling. Contrary to what the Peace Corps had expected, he often worked with school principals and district supervisors as often as teachers, and even when working with teachers, he just as often dealt with the teachers in a school as a group as individually, simply because problems he had to solve were operational in nature and affected the school as a whole.

We concluded that the utilization Volunteer's role has two components: a) school development, and b) educational consultation. In school development, he acts in regard to the school analogously to the community development Volunteer in regard to a town or village. Serving as a catalyst, he must mobilize the staff of the school to improve its physical facilities for effective television use, and to change their organizing of work so that it is built around the television. However, we also found that his mode of work differs in many ways from that of the community developer: the utilization Volunteer works with many schools concurrently, while the community developer works with one or at the most a few communities; the utilization Volunteer deals with his people in regard to relatively limited objectives defined for him by the nature of the project in which he is participating, while the community developer defines many or all of his goals except for the idealistic one of community mobilization for self-help; the utilization Volunteer turns to new schools every few months, while the community developer often works with the same people throughout his 21 months of overseas Peace Corps service; the utilization Volunteer functions within a large, special purpose project as one of its components, and his work must be consistent with and coordinated to the goals of the project as a whole and the work of other ETV Volunteers in other spheres of ETV, while the community developer is, by contrast, largely independent. In educational consultation, of course, the utilization Volunteer tries to communicate ideas aimed at modernizing the rote memorization-based teaching.

What School Case Studies Told About How the Volunteer Worked: The case studies amplified the picture provided by the "critical incidents" and illustrated the typical pattern of school adaptation to television. We were able to illustrate how a school passes through a number of distinct but occasionally overlapping phases before reaching a state of equilibrium in which the pupils will almost certainly regularly receive televised instruction under satisfactory conditions without continual attention from the Volunteer. Roughly speaking, this process of adaptation falls into five phases:

1) Survey and Selection: The schools in an area designated for television are surveyed to determine those meeting the criteria for television use: power supply, wiring, large size (preferably all five grades, so all telecast lessons can be used), security against thieves (often requiring a caretaker or someone to live in the school), and a desire to use television. The surveying and selection is done jointly by Volunteers and local Colombian school officials. By the time of the case studies, it occupied a month or more in an area prior to the inaugurating of television at the beginning of a semester. We have found this step to be crucial to prevent wasted sets and effort.

2) Orientation: Prior to the beginning of telecasting for an area's first television semester, orientation sessions are presented for all the teachers and directors. This "short course" in instructional television use may run from one to several days, depending on the arrangements that can be made with local Colombian school officials. Usually, it is given in a central place under the auspices

of the Colombians for an entire area; where transportation is difficult and distances great, it is given in individual schools. It covers all phases of the program: schedules, curriculum, use of the Teacher Guides, teaching with television, and TV set adjustment (few of the teachers have ever used a set before). The principal instructors are the Volunteers. Often Volunteers reported that failure to attend the orientation "short course" was associated with a teacher or a director being a special problem -- either because of a lack of basic understanding of how instructional television worked, or a latent hostility. Failure to participate, in fact, would seem to be a valid warning of future difficulties. We also found these orientation sessions to be crucial for later effective television use.

3) Introduction: Once a school has been designated for television, the utilization Volunteer to whom it has been assigned visits the school, confers with the director and teachers, and arranges for the locating of the TV set in the school. Ideally, this step follows the orientation "short course," but sometimes lack of time forces it to come first. Since few schools meet all the criteria perfectly, the Volunteer also attempts to achieve agreement for improvements. This includes problems concerning wiring, selection and furnishing of a viewing room, set security, and the like. The Volunteer will also try to arrange a system for the distribution of Teacher Guides in the school, and to identify himself and a local Colombian school official as persons to inform in case of any difficulties. The set itself is installed by a Volunteer technician and his Colombian counter-

part employed by the Department (state). The utilization Volunteer also will attempt to amplify and reinforce the information presented in the orientation sessions. This phase may be completed in one visit, or it may require several. It may be thought to end when the set is installed in a classroom, functions, and the teachers are prepared to begin teaching with television.

4) Organization: This phase begins when the school starts to receive telecasts. It involves the adapting of the school's operation to the demands of television -- in essence, the restructuring of practices around the television. This means the revising of class and recess schedules to fit the television schedule, the shifting of classes in and out of the television room, the providing of 15 or so minutes before and after each telecast for the complementary "motivation" and "follow-up" teaching, and attention to the set and its placement and location for expeditious use. In a sense, this phase is the empirical test of the success of the orientation and the introduction arrangements in the school. On almost every visit, a Volunteer usually finds something that could be working out better, and will have to adopt some tactic to achieve change. Some classes may be missing their telecasts; the viewing room may be overcrowded for one showing and empty during a repeat; the noise from recess may drown the sound; so much time may be lost in class shifting that there is little "motivation" and "follow-up"; reception or set adjustment may be marginal; viewing may be difficult because the room has not been sufficiently darkened; the Teacher Guides may not be reaching all the teachers; and the like.

Many visits are likely to occur before a utilization Volunteer is satisfied with a school. The goal is adherence to ETV -- regular viewing under conditions where learning can occur. This establishes the necessary foundation for superior instruction and further educational reform through television. This phase of continuous Volunteer attention is a crucial one for the success of the televised instruction. If the school's organization cannot be fitted to the television, there is at the minimum a great loss in the amount of television reaching the children and in the amount of other time devoted to teaching; at worse, the school staff may become so frustrated and discouraged that the television is largely abandoned.

5) Teaching: In this phase, the Volunteer focuses on improving teaching practices. It occurs concurrently with that concerned with organization, although it continues as long as a Volunteer gives attention to a school. The typical mode of instruction in Colombian schools is rote memorization. The roots of the practice are the teachers limited training and education, for they have learned little of any other method, and their own school experience, for that is how they were taught; it is strengthened by values and socio-economic conditions that offer little hope of independent thinking or originality being of much use to the mass of poor whose children attend public schools; and it is promoted by the crowded classrooms which inhibit individual attention and make teaching easier when discipline and lock-step are emphasized. The Volunteer observes classes, makes suggestions to individual teachers, holds meetings to demonstrate different ways of presenting materials, and encourages the teachers to adopt new ways and criteria.

The vehicle for this is the television. The specific lever is the Teacher's Guide, which contains for each course advance outlines of the telecasts and suggestions for complementary teaching. The basic method is encouraging full use of the Guide, which at its best serves as a crutch for the insecure and an inspiration for the more creative. This phase ends only when a Volunteer is assigned to new schools. It occupies as much of his time as other problems in the school, and the problems of other schools, permit. It cannot occupy all of his time, for it assumes the foundation of orderly adaptation to television which usually follows only upon his assiduous effort.

The overall goal of the utilization Volunteer is a self-perpetuating functioning of television in the school -- a state of equilibrium. Then, presumably, the school can become primarily the responsibility of the two or more special supervisors in each Department (state) assigned to ETV and regular local school officials. The exact point at which this occurs is up to the Volunteer's subjective judgment. This is influenced by the school calendar, which makes the beginning of each of the year's two semesters (February-June, and July-November) the most feasible time to introduce television into an area. As a result, Volunteers have come to look upon a semester as the right amount of time to adapt a school to television, since this permits them to transfer to a new area. There have been many individual exceptions to this pattern; Volunteers (although not necessarily the same Volunteers) have continued to attend to some schools relatively continuously for as long as three semesters. We find little in the 13 case studies, or in our two years of observation, that suggests that less than a semester would be feasible. For one thing, the fact that a Volunteer works concurrently in many schools -- perhaps as many as 20 -- limits the amount of time he can give to each. For another, some time is necessary for problems to arise and for school people to try out various solutions before settling on an acceptable one.

What the Volunteer Needs to Fulfill His Role: Taken together, the "critical incidents" and the case studies make it clear that the Volunteer's fulfillment of his role of educational consultant depends on his success as a school developer. It is only after television has been made the accepted and working basis of a school's operations that he can devote himself fully to using it as a vehicle for changing the individual teacher's method.

They also make it clear that the function performed by the utilization Volunteer is essential for the large scale introduction of instructional television into the schools of a developing country. Because television brings so many new problems to a school, merely installing TV sets cannot guarantee instruction by television. Individual attention must be given at every point of reception if there is to be a true receiving network.

In fulfilling both components of his role, the Volunteer must persuade others to change their behavior. His goal is to obtain compliance. However, as a school developer, he deals with a social organism, the school, that is itself part of a larger institution, the educational sys system; as a teaching advisor, he deals with individuals.

The implication for Volunteer recruitment and training of the expanded conception of the utilization Volunteer's role is that knowledge of teaching methods and theory, and the ability to communicate that knowledge on a practical level, although important, is not enough. The utilization Volunteer also must possess skills of persuasion and knowledge of how to bring about changes in the way people behave, and especially how to alter the behavior of groups. This kind of knowledge might be called practical social psychology -- the concepts and techniques of persuasion -- and it should be part of Peace Corps training.

The concern with adapting the school as an entity to television gives special emphasis to the importance for Volunteer effectiveness of such knowledge. However, the same basic skills also can be applied to altering individual's teaching. In addition, not only would such skills be useful when working on teaching with individuals, but much teaching information can be more effectively and economically communicated to teachers in groups. As our data illustrate, the Volunteers have found this to be a worthwhile approach for they frequently employ it. However, it is not enough for the Volunteer to assemble a group of teachers. He also must know what to do with the group once he has it together. Presumably, increased awareness and knowledge of the dynamics involved, and the techniques that might be invoked, would increase Volunteer effectiveness. Thus, this kind of knowledge is important for both components -- school development and teaching consultation -- of the utilization Volunteer's role.

Of course, the educational consultation part of the Volunteer's role also has implications for recruitment and training. The utilization Volunteer should know as much as possible about teaching methodology, and have confidence in his mastery of its techniques and theory. Ideally, the utilization Volunteer would have pre-Peace Corps training and experience in teaching. At the minimum, his Peace Corps training should cover such knowledge as thoroughly as possible.

We did not give extensive attention to certain traits that utilization Volunteers should have because they are so obvious. Of course, he needs tact, patience, tolerance, and sensitivity to the way people behave in organizations. The importance of certain skills and knowledge also hardly need emphasis. He must know how Colombian schools and the Colombian educational system operate, and he must be able to communicate well in Spanish, for communicating is his basic tool. Language skills are particularly important for the utilization Volunteer because his contact with specific persons is often relatively brief, and he must deal with a great number of them; he does not have the opportunity for the familiarity that permits idiosyncratic communication.

Typically, about a semester (February-June or July-November) has been required for a school to adapt to television. Often, very little of this time can be devoted by the Volunteer to teaching itself. The implication for project planning and operation is that the achieving of extensive modernization of teaching can only come with further efforts at in-service teacher training. Much time and many Volunteers are required. The establishing of a receiving network of schools for television has merely set the foundation for further educational development. Once the network is functioning, educational consulting can begin. Another and more obvious implication, of course, is simply that the expansion of the receiving network in this kind of project is limited by the number of Volunteers or others who can perform the function of the utilization Volunteer in Colombian instructional television.

Research Report No. 6: Instructional Television for the In-Service Training of the Colombian Teacher

In addition to televising instruction for elementary school pupils, the Peace Corps also televised special educational material for their teachers. In this report, we presented a series of studies concerned with the effectiveness, acceptance, and improvement of this television for in-service training.

Although the studies have some broad implications, they are all specifically concerned with the first complete course of several weeks duration to be televised for the teachers. This was a 17-telecast course on the "new math" called "Mathematics for Teachers." Presented during the ETV Project's third semester of operation (the first semester of 1965), this course was an innovation on two counts -- its length, and its specifically instructional content. Previously, the special television for teachers had consisted largely of unrelated programs on broad topics (such as child psychology). Viewing of this course or the other television for teachers was always on a voluntary basis.

Three Studies: Three studies provided feedback on the general effectiveness of this course, on the most effective means of helping Colombian teachers learn from such televised instruction, and on the course's effectiveness as an addition to the curriculum in Normal schools (secondary schools devoted to teacher training). The principal findings, by study, were:

1) In Bogota, tests administered to 44 teachers showed that viewing of the televised course was clearly related to superior performance on a modern math test based on the course's content. The gain associated with viewing was quite marked, indicating that within its goals, the course was a potent success.

2) In Medellin, a study of 81 teachers in 12 groups specially organized by Volunteers to follow the televised course, provided more evidence of the effectiveness of this televised instruction. Again, viewing was associated with higher test scores. Moreover, the effectiveness of various ways of increasing learning via television was measured. The effects of three variables when added to viewing were examined: a) Volunteer supervision; b) post-lesson discussion; and c) the keeping of notebooks. Most productive for learning was a combination of high exposure and discussion. Unfortunately, because all the high viewing group also engaged in discussion, the effects of these two variables could not be separated. However, the data suggest that Volunteer supervision seemed to promote learning, probably because it led to discussion and practice, for added exposure without supervision is not associated with superior test performance. Moreover, Volunteer supervision seemed to be essential to promote both exposure and discussion. However, periodic supervision seemed to be sufficient for this purpose. The keeping of notebooks seemed to contribute little to learning, probably because the notebooks were not syntheses, but merely copy-books.

There are many hints in the Medellin results for future action. The first is that the organization of groups for viewing holds considerable promise. The second is that without Volunteer attention in the group situation, the effectiveness of televised instruction is much reduced. This suggests that the effectiveness of television instruction for teachers is limited to some extent by Volunteer or other supervisory resources. Third, it suggests that calculated spacing of Volunteer attention can increase Volunteer productivity in this area, since periodic supervision will do the job. Fourth, the usefulness of the notebooks, if teachers want to keep them, probably can be increased. It is possible that problem books or review (self-graded) tests should be substituted, or perhaps some modest form of programmed instruction.

3) In the Departments of Tolima and Huila, a study of five classes in four Normal Schools again provide evidence of the effectiveness of the televised instruction, with viewing again associated with higher test scores. More important, this study also indicates that the televised course could be used as a supplement to the regular curriculum in Normal Schools to increase learning of modern math.

No comparisons were made between the Bogota and Medellin results or Tolima-Huila results because of differences in time between the end of the course and administration of the tests, and because the three tests were not quite the same (the Bogota test was revised for use in Medellin and Tolima-Huila). The Bogota tests were administered immediately after the end of the course, and the Medellin and Tolima-Huila tests approximately three weeks later. Of course, the clear-cut results in the latter two instances are in themselves further indications of the course's effectiveness.

Taken together, of course, these three studies suggest that this particular television course was very effective. In so doing, they also provide encouraging evidence on the possibilities for advancing the education of Colombian teachers through television. However, they also have somewhat broader implications, since there is no reason to think that the results on the context for greater learning would be limited to this course. Here we principally found that Volunteers could increase the effectiveness of televised instruction by organizing teachers into viewing groups so that discussion can follow viewing.

A Fourth Major Study: To help the Peace Corps develop a truly effective program for in-service training by television, we immediately followed these three studies with another. This fourth study combined a survey and another test on this same course, which were administered to 1,341 teachers in Bogota and Cundinamarca. The principal findings were:

1) Test performance and viewing of the course were clearly related, again suggesting high instructional effectiveness for the course.

2) Between one-third and one-half the teachers viewed almost all or all of the programs, and over one-half viewed one-half or more of the telecasts, suggesting considerable success in reaching the teachers.

3) Viewing was related to Volunteer supervision of viewing sessions, suggesting that the Volunteer can increase the audience for televised instruction.

4) The *most wanted* instructional aids to accompany televised instruction were a) the opportunity to ask questions of an expert in the subject or b) to participate in a conference with an expert in the subject, suggesting that the teachers' greatest demand in connection with televised instruction is for feedback.

5) Among the *least wanted* instructional aids was post-lesson discussion with other teachers, although discussion can fulfill many of the functions of interacting with an expert and past research had suggested that such discussions could be of great instructional value. If teacher discussion is ever to be used widely, then, it is likely that the idea must be pushed, a job for which the Volunteer is especially well suited.

6) The teachers' preferences for instructional aids was related to amount of viewing of the modern math course. The top viewing group equally approved of discussions and the opportunity to question or confer with an expert. The lower viewing groups expressed interest equal to that of the top group in interchange with an expert, but expressed *far less* interest in discussions. Thus, the principal objection of those who did not watch was the lack of feedback, for which they did not perceive discussion as a substitute.

7) Teachers who did engage in discussions of course content with other teachers appeared to be more likely to think highly of the usefulness of such discussions, to be more likely to prefer televised over in-person instruction, and to be more likely to think that as much can be learned from televised instruction as from in-person instruction. The relationships could be observed for both high and low viewers,

but in regard to the first two only the relationship for the high viewers is absolutely clear-cut.

8) Among viewers, teachers who engaged in discussions relatively frequently performed better on the math test than those who did so less frequently.

These findings are encouraging. The televised modern math course was not only effective instruction, but also reached a sizable audience. The findings also delineate both some of the barriers to complete success and some of the strategies which might prove profitable for overcoming them.

The chief barrier is simply that a large proportion of teachers doubt that they can learn as much from television as they can from in-person instruction. These teachers are less likely to use ETV than those who think more highly of television's instructional capability. Overall, the supplements to television in which the teachers express the greatest confidence are two involving feedback: the opportunity to ask questions of or participate in a conference led by an expert in the subject. It also seems likely that the principal objection to televised instruction, and the root of the belief that it is not as effective as in-person instruction is the perceived lack of feedback. We found that the grass-roots substitute for expert help, teacher discussions, relatively is not highly regarded. However, those who actually tried out discussions had a markedly better attitude toward them as a supplement and toward learning from television. Moreover, discussion participation tended to be associated with higher achievement, as measured by test scores. What these findings suggest is that one way to increase teacher use of television for their own in-service training is to have Volunteers encourage them to view in groups with discussions following viewing, for discussions lead directly to further practice and consolidation of what is to be learned. This is in addition, of course, to whatever social facilitation taking part in a group for viewing may have, which would also promote viewing.

Research Report No. 7: Improving the Effectiveness of Peace Corps Efforts to Change Teacher Behavior

We conducted an experiment to study the effects of arguments to persuade Colombian teachers to adopt new teaching practices. The research took place during the second semester of 1965. We made the study because gaining compliance from teachers had been a problem for the ETV Volunteers and because the problem of overcoming resistance to change is a general one for Peace Corps and other agencies concerned with development abroad.

Theory and Method: We used Colombian public primary school teachers as subjects. The persuasive appeals argued for a change in teaching methods. Thus, our experiment dealt directly with the situation and people with whom we were concerned in the Peace Corps project. To give the study general applicability, we conceived of a persuasive argument as having at least *two* major components -- a "motivating" component, *intended to arouse interest*, and a "relating-descriptive" component, which *descriptively relates* what is *advocated* to what is commonly practiced. In the ETV Project, we found that a commonly used "motivating" component was an appeal to "efficacy" or greater job effectiveness, and that a commonly used "relating-descriptive" component was the characterization of the advocated new way as a "great departure," or radically different from present ways.

Now since we had found teachers denying the need for change by claiming that their present ways in fact corresponded to what was advocated, we thought that these appeals might arouse defensiveness, and thus be self-defeating. As a result, we developed two different appeals, one for each of the components. For the "motivating" component, we developed a "professional" appeal, and for the "relating-descriptive" component, a "small departure" appeal. The "professional" appeal argued that the teacher should adopt the advocated practice because a true professional is constantly taking advantage of the latest techniques. The "small departure" appeal, as the name implies, described the advocated practice as not really too different from what was generally in use.

Since there were two components for each argument, and two versions of each component, this led to four different possible combinations. To present these to teachers, we prepared four different booklets, each describing and advocating a "new" teaching method arbitrarily called the "Socratic Method." Each of the four booklets had in common an introductory paragraph, and at the conclusion an example of a teacher using the new method. In between, each had a different combination of the various appeals: a) "efficacy" and "great departure"; b) "efficacy" and "small departure"; c) "professional" and "great departure"; and, d) "professional" and "small departure." Thus, there were four experimental conditions.

Subjects were 100 teachers at Concentracion Kennedy, a large complex of schools in Bogota, randomly divided into the four conditions. We measured both the persuasive and defense arousal effects of the various appeals. For persuasiveness, we measured desire to learn more about the advocated method, willingness to try it out, desire for more information, and evaluation of its effectiveness. For defense arousal, we measured the perceived similarity of what was advocated to the subject's own practices and the extent to which it was perceived as already in use in Colombia.

We hypothesized that the "professional" and "small departure" appeals would be persuasively superior and would arouse less defensiveness, on the grounds that they contained less threat.

Results: The data were subjected to an analysis of variance (Walker-Lev fixed constants model for unequal numbers of subjects in each condition). In examining the main effects, we found that:

a) the hypothesis that the "professional" appeal would be persuasively superior to the "efficacy" appeal received some confirmation;

b) the hypothesis that the "small departure" appeal would be persuasively superior to the "great departure" appeal received no confirmation;

c) the hypothesis that the "professional" appeal would arouse less defensiveness than the "efficacy" appeal received no confirmation; and

d) the hypothesis that the "small departure" appeal would arouse less defensiveness than the "great departure" appeal received strong confirmation.

In examining interactions possibly obscured in looking only at the main effects, there was some evidence supporting the hypothesis that the "efficacy" appeal resulted in greater defensiveness than the "professional" appeal.

Discussion: The findings provided some useful guidelines for Peace Corps tactics. The results demonstrate the dangers in the more obvious and commonly used arguments to promote change. These dangers seem particularly great when the argument is made that a new way represents a "great departure" or revolutionary change from the usual, familiar practice. It does not matter whether or not the advocated practice actually represents a revolutionary change. What matters is that if it is perceived as such, this perception may well lead to a self-defeating defensiveness. The kind of argument which may impress sophisticated and better-educated persons at relatively high levels, and other role-secure persons, may backfire when used on the ordinary person -- in this case, the Colombian classroom teacher -- who is asked to put it into practice.

There is some reason to think that this problem is particularly severe with the Colombian public school teacher. It appears likely that he considers himself to be lowly regarded and inadequately recognized and rewarded by his society for the services he performs. Probably, he feels that he does a very good job at teaching. His feelings of deprivation over status would promote belief in his efficacy, for in this situation he would have little other than his job effectiveness by which to justify himself. It should not be surprising that he tends to cling tenaciously to his old ways when asked to make a change.

Any argument demanding change is potentially threatening, because it implies that his present work is inadequate and that perhaps he is not adequately equipped to do his job properly. The greater he perceives the demanded change to be, the more he is apt to feel threatened, and the more defensive he is likely to be. Similarly, the more attention an argument calls to his teaching and its effectiveness, the more likely is it that such defensiveness will be aroused. However, anyone is likely to be somewhat defensive when his way of doing things is challenged. Thus, our interpretation of the findings of our research does not depend on the accuracy of the speculation that the Colombian teacher is unusually prone to react defensively to attempts to change his teaching practices.

Now, let us further review the results of this experiment. We found some evidence that, for the "motivating" component, the "professional" appeal was persuasively superior to the "efficacy" appeal. Those receiving the "professional" appeal were ready to devote more time to learning more about the advocated teaching practice. Since arousing sufficient interest for just this kind of practical commitment is just what we would hope of an effort to motivate, this seems to us to indicate an important advance over the effectiveness of the commonly used appeal based on "efficacy."

We hypothesized that the "professional" appeal would be superior because it contained less threat, although we also recognized that it would benefit from its implication of a rise in status, for Colombian teachers are seldom thought of or referred to as "professionals." In looking at the main effects of the appeals, we did not find that the "professional" appeal aroused less defensiveness than the "efficacy" appeal. This would suggest that the "professional" appeal's persuasive superiority might well be attributable to its implication of higher status, or upward mobility. However, in looking at the significant interaction for one form of one of the defense arousal items, we found some evidence that the "efficacy" appeal did lead to greater defensiveness. This would suggest that it did contain a greater threat, or that it at least set the stage, by making teaching effectiveness salient, for other aspects of the argument (in this case, the "great departure" appeal) to arouse greater defensiveness. Without further research, we cannot separate unequivocally the impact of the elements contained in the "professional" appeal. In practical terms, however, it does seem clear that arguments not based on "efficacy" are likely to be more effective, and that arguments containing some compliment or implication of higher status are likely to be particularly effective.

We did not find, for the "relating-descriptive" component, that the "small departure" appeal was persuasively superior to the "great departure" appeal. In fact, contrary to our hypothesis, there was some indication that the "great departure" appeal was superior. Since the differences favoring the "great departure" appeal only bordered on an acceptable level of significance, we would be justified in not attempting any interpretation at all. However, we will do so because we do not want to overlook any potentially useful information in the results. In addition, if anyone is inclined to interpret the results as indicating that the "great departure" appeal was persuasively superior, we would like to offer our view as to why, in this particular case, it might have been so.

We think that the results on the persuasive effectiveness of the "great departure" appeal can be most profitably examined in the light of our finding that this appeal also aroused much more defensiveness than the "small departure" appeal. This defensive reaction, it will be recalled, involved a greater tendency for the subject to claim that the advocated teaching practice was similar to his own way of teaching. We are inclined to think that this greater defensiveness itself disposed subjects in the "great departure" condition toward making replies indicating a favorable attitude toward the advocated practice. If a teacher claims that a new practice is very much like his own way of teaching, is it not reasonable for him also to show some sign of considering the new practice as worthwhile? Thus, in inducing defensiveness, we may have pushed the teachers toward replies, which on the surface, would seem more favorable.

We offer this only as a speculation. However, we think that a close look at the content of the items supports this view. The "professional" appeal was superior in regard to the amount of time the teacher was willing to devote to learning more about the advocated practice. There was no evidence that the "great departure" appeal was superior on this count. The only results which might be taken as indicating persuasive superiority for this appeal concerned the interest of the teachers in more information on the advocated practice, and the length of time for which they might be willing to give it a try. If the subjects were reacting on the basis of a defensive belief that the advocated practice was similar to their own teaching, we would hardly expect them to be interested in spending time to learn about the practice, for they would think themselves already familiar with it. On the other hand, they might well want more information on it, to confirm their impression that it really is similar. And they might well be ready to give it a longer try, simply because they would not see it as involving anything new for them.

In regard to defense arousal, the consequence of the "great departure" appeal is quite clear. It led to the erection of a barrier by the teacher to making any change. In practical terms, it seems clear to us that arguments following this model, whatever the specifics, are apt to be less successful than those in which the degree of change demanded is cast in less bold relief.

We think there is a clue in our findings to one of the paradoxes of the ETV Project -- that television arouses great surface enthusiasm among Colombian teachers, yet they are not always ready to change their ways to make what is argued to be better use of it. When teachers are asked to adopt what is described as a markedly new way of teaching, they defensively dismiss the new way as already in use. Having done so. they give it ready and eager lip service, because they have seized on the idea that it is what they are already doing. The sum is a very strange, although not inexplicable, brotherhood of enthusiasm and apathy whose father is fear -- fear of change, and what it implies about the value of their way of doing things. It is in this context that the enthusiasm for television as a device can be partially understood: as a technological device, itself asking and implying nothing other than modernization, it can be embraced without any personal acknowledgement of inferiority. It is in this context that the frequent difficulties of obtaining changes in daily teaching practices also can be partially understood: as kinds of individual behavior long engaged in, such changes do imply an acknowledgement of inferiority. Thus, it is not uncommon to find a teacher enthusiastic about television who will not readily do anything differently in teaching with it other than switching on the TV set.

Broad Implications: In sum, the most obvious approach to winning teacher cooperation may not always be the best, and that enthusiastic verbal feedback, although gratifying to the Peace Corps persuader, may often be accompanied by defenses. We would also note that, while our research dealt with Colombian teachers and changes in teaching practices, the dynamics and general issues with which we were concerned probably also apply to any Peace Corps situation in which people are asked to change long-established practices.

Research Report No. 8: The Televised Curriculum and the Colombian Teacher

In this report, we presented a detailed analysis of the reactions of the Colombian classroom teachers to the courses televised for their pupils. This was the major television output for the Peace Corps, amounting to 300 to 600 minutes weekly. The source of the data was four teacher surveys conducted at the end of each of the two school semesters of 1964 and 1965 (these are the same surveys which provided data for Report No. 4).

Every measurement reflecting opinion toward a televised course or its Teacher Guide is based solely on the responses of teachers who actually taught with the course for the full semester preceding the survey. Thus, we are dealing with the opinions of teachers thoroughly familiar and actively involved with the courses.

Before briefly reviewing our major findings, we would like to emphasize that the data consist of opinions -- what the teachers themselves thought about the courses and the Guides. Whether these opinions are always justified or not is another question.

We have tried to reveal as much as possible about these opinions in the belief that knowledge of them would be useful for making new decisions -- either to revise the course, and if so in what way; or to focus on overcoming teacher resistance to content or form of programs which seem educationally sound. Since the teacher is expected to supplement the television material with pre- and post-telecast teaching his attitudes have a definite impact on the efficacy of the programs.

Ratings of Courses: In regard to the teachers' ratings of each televised elementary level course as a whole, the major findings were these:

1) In every one of the four semesters, the degree of approval given by the teachers to the various televised courses varied markedly.

2) Over the two years, there was considerable consistency in the standings of the courses:

Courses in Natural Science generally received the highest ratings.

Courses in Social Science generally received the lowest ratings.

Courses in Mathematics and Lenguaje ("language arts") received middling ratings, with Lenguaje faring slightly better.

The one course televised in Music during the second year of the project received a quite high rating.

3) As time passed, and procedures improved as the project expanded to new areas and took in more teachers, the degree of approval given to all courses combined increased.

4) The revising of the Social Science courses for the second year did not clearly raise their relative standing with the teachers.

5) If the ratings given the courses with which the teachers were most satisfied are taken as the level which a course must achieve to have a "high" or "satisfactory" rating, then a majority of courses during the two years failed to achieve such a rating.

When teachers are relatively dissatisfied with a course, it is reasonable to attempt to find out why, and to consider doing something about it. If time and people are in short supply, it is reasonable to concentrate the limited resources available for making changes on those courses with which the teachers are least happy. We consider any gross differences in teacher satisfaction with courses undesirable, since for every 15 minutes of the television the teacher is expected to do 30 minutes of complementary teaching, and it seems unlikely that a teacher will give the same effort or enthusiasm to a course he holds in relatively low esteem as he will to one he holds in higher regard.

Measuring Specific Complaints: One way of finding out just why the teachers were relatively dissatisfied with certain courses was to ask them. We did this by constructing a seven item "dissatisfaction inventory" designed to cover all aspects of a course. The items concerned the following complaints: the programs cover too much material; the children are not able to see clearly objects, maps, and things which are shown; the programs teach little the classroom teacher cannot teach; the television teacher does not have a good personality for television; the programs entertain, but teach very little; the children learn only from the classroom teacher's "motivation" and "follow-up" and not from the program; the programs do not teach concepts, but only facts. After making the overall rating in the two 1965 surveys, the teachers completed this inventory for each course.

We analyzed the results of this "dissatisfaction inventory" in several ways.

What the Teachers Disliked In General: In regard to dissatisfaction with the televised curriculum as a whole, which we examined by taking the average complaints over all the courses, the major findings were these:

1) The two most frequently made complaints were that the televised courses "cover too much material," and that the children could not "see clearly objects, maps, and things which are shown." On the average about one out of five teachers made these complaints. Thus, the top problems were pace and visuals.

2) About one out of 10 teachers, on the average, complained that the children "learn only from 'motivation' and 'follow-up,'" and that the programs "entertain, but teach very little."

3) About one out of 10 teachers, on the average, complained that the programs "do not teach concepts, but only facts," and that the programs "teach little the classroom teacher cannot teach." The first of these, about not teaching "concepts," was included because we occasionally heard exactly this complaint from teachers. However, its meaning is ambiguous, for the Colombians seemed to mean that the programs did not provide axioms for rote memorization, while we might take it to mean that they did not encourage generalization or the forming of broad, meaningful ideas. Further analysis indicated that it could be ignored, for complaints on this count varied little among the courses, making it difficult to single any out, and the making of this complaint turned out to have no relationship to the making of the overall ratings.

4) Very few teachers -- about three out of 100 on the average -- complained that the "television teacher does not have a good personality for television."

Complaints About Specific Courses: In regard to the pattern of specific complaints about each of the courses, the quantity of data involved is quite large. Since there were 15 courses televised during each of the two semesters, and seven kinds of complaints or dissatisfactions measured for each course for each semester, there are a total of 210 measurements (15 courses x 2 semesters x 7 complaints = 210).

We tried to make interpretation manageable by looking at general trends, and outstanding deviations from the average trend. We first looked at the pattern of complaints for each course by noting those which fell somewhat above or below the average for all courses. Then we looked at the courses receiving a relatively large number of any kind of complaint, by taking note of the actual frequency of those making above average numbers of complaints.

At the same time, we tried not to lose sight of the fact that any frequently made complaint, whether above or below the average was probably important. Thus, in addition to looking at the patterns, and at the courses receiving an above average number of complaints of any kind, we also looked at those complaints made relatively frequently.

Even with these focused approaches, however, the number of findings is large. We can only cover the highlights here. These include the following:

1) *Above average* complaints of various kinds were made most often about courses in Social Science, Lenguaje, and Mathematics. Complaints were *relatively infrequently* made about the one Music course, and in only one instance about a course in Natural Science. This is consistent with the overall ratings.

2) As to what was wrong with courses in each subject: The *patterns* for courses in Lenguaje suggested that the teachers thought they only "entertained, but taught very little."

The *patterns* for courses in Mathematics suggested that, at least for the courses for the lower grades, the teachers thought they held the pupils' interest without imparting much knowledge. This was indicated by above average complaints that the telecasts only "entertained," and that the children learned only from the teacher's "motivation" and "follow-up."

The patterns for courses in Social Science suggested that the teachers thought they covered "too much material."

The patterns for courses in Natural Science simply suggested high general satisfaction, since out of 56 measurements (4 courses x 2 semesters x 7 complaints = 56) only one was above average.

3) In regard to the actual count of above average complaints, Social Science courses, on the complaint that they covered "too much material," stood out above all others. This was generally a lowly rated course, and this tells us why. For the first semester of 1965, when the average for all courses for this complaint was 23.2, the per cent making the complaint for Social Science V was 58.5 and for Social Science IV, 45.7; for the second semester, when the average was 17.7, the per cent for Social Science V was 31.9 and for Social Science IV, 21.4. In the first three instances, these were the most frequently made of any kind of complaint about any course during the year.

4) For the complaint that the children are not able to "see clearly objects, maps, and things," Mathematics I stood out for both semesters, and Lenguaje I in the second semester. For the complaint that the children learn only from the teacher's "motivation" and "follow-up," Mathematics I again stood out for both semesters, and Mathematics II for the second semester. For the complaint that the programs only "entertain," all three Lenguaje courses (I, II, and III) stood out for both semesters. Thus, we see what was principally disliked about these courses.

Some Implications: In examining these results of the "dissatisfaction inventory," we were able to get a useful picture of things about each course to which the teachers particularly objected. As with the overall course ratings, this information provides a basis for reflection and the making of decisions about revising courses.

We would not suggest that a course is flawed in a particular way simply because the teachers seem to think that it is. However, we would suggest that when the teachers are dissatisfied to an unusual degree with a course on a particular count, then the course merits special attention in regard to the alleged deficiency. If a course is to be revised, it seems reasonable to pay some attention to what the teachers dislike about it. However, research results are no substitute for astute judgment. If the teachers seem to be misguided in their complaints, then at the very least some kind of information campaign is probably called for to justify the course to them and reduce their dissatisfaction, for their [illegible] remains in itself a fact.

Complaints and Overall Ratings: In relating the making of the complaints to the making of the overall ratings, we took two approaches. In one, we measured the degree of similarity obtained between ranking the courses by the frequency of complaints and by the overall ratings. In the other, we calculated the multiple correlation between the making of all the complaints for the courses grouped by subject, and as a by-product obtained indices ("beta-weights") showing the importance for each subject of each of the complaints in the making of the overall ratings. The major findings were these:

1) The degree of similarity between ranking the courses by the average for each course of all seven kinds of complaint and by the overall ratings is quite high. The rank order correlation coefficient for the first semester of 1965 is .732 ($p. < .005$), and for the second semester, .779 ($p. < .001$). This indicated that the complaints as a whole were relevant to the overall ratings and that they are of really valid concern.

2) The degree of similarity with the ranking by overall rating attained by rankings on the basis of the various specific complaints is less than that attained by the average for each course of all the complaints. For five of the complaints -- that the children can't "clearly see objects," that they learn only from "motivation" and "follow-up," that the programs only "entertain," that the programs "teach little the classroom teacher cannot teach," and that the television teacher "does not have a good personality for television" -- either led to significant (taking .05 as a criterion) or near-significant similarity of ranking for both of the semesters of 1965. The ambiguous complaint that the programs "do not teach concepts" led to a very low degree of similarity that was very far from being significant. Surprisingly, the most frequently made complaint for the televised curriculum as a whole -- that the courses "cover too much material" -- led to rankings with a relatively low degree of similarity to the ranking by overall ratings, and these were not significant. This hinted that while this complaint may be important for the overall rating for some courses, it was not so for all. This was later confirmed when we assessed the weight of each complaint in the making of the overall ratings.

3) The multiple correlation coefficients between the complaints as a set and the overall rating for the courses grouped by subject (Natural Science, Social Science, etc.) ranged from .311 to .591, and were all highly significant ($p. < .001$). This gives further support to the contention that the complaints are highly relevant to the overall ratings, and are of valid concern. (It should be noted that these correlations were "depressed" or an underestimate of the true relationship, because the complaints were measured dichotomously, forcing us to use point biserial correlations in calculating the multiple correlations.)

4) These multiple correlations were consistently higher for the second semester of 1965, hinting that the body of teachers evaluating the courses may have increased their use of rational, practical (and thus, more appropriate) criteria in judging the courses over the year.

5) The weighting of each complaint as to its role in the overall rating, which indicates whether the making of the complaint consistently led to giving a course a lower rating, turned up as a surprise. For the four groups of courses involved in the analysis (Natural Science, Social Science, Lenguaje, and Mathematics), the complaint that the programs only "entertain" almost invariably played the largest role in the making of the overall ratings. This was so in seven of the eight analyses (4 subjects x 2 semesters = 8). This was even so for the subject whose courses had the highest ratings and received the least frequent complaints, Natural Science. It was particularly important for courses in Lenguaje, which might be expected on the basis of the high frequency of complaints on this count for these courses. *Its ubiquity, however, suggested that this might be a particularly sensitive issue*

with the teachers because of culture-based values which hold pleasure and learning as inconsistent. If so, we suggested, this concern among the teachers poses a serious threat to their satisfaction with any modern approach to education that can probably best be countered by maintaining a clear-cut focus on the serious instructional goals of the televised courses. This would be a job for the utilization Volunteers and the Teacher Guides, and need not affect the content of the programs at all.

6) The most frequently made complaint -- that the programs "cover too much material" -- proved to be important primarily for the overall ratings of the Social Science courses.

7) The ambiguous complaint that the programs "do not teach concepts" was not related to the overall rating for any of the subjects. It will be recalled that complaints on this count did not vary much among the courses, making them of little use, and that they did not lead to rankings of the courses that were similar to those obtained from the [illegible] this item could be dropped if the "dissatisfaction inventory" is used again.

8) The six other complaints all showed some sign of being related to the overall rating for at least one subject in one of the two semesters, although the complaint that the programs only "entertain" overshadowed the others. However, the weight of some in the overall rating was relatively slight. Nevertheless, we would not feel justified in concluding that any of these items could be dropped. For one thing, the weights are based on the analysis of the overall rating of courses grouped by subject, obscuring differences among the individual courses

of one subject. If a complaint had any weight for any course at any time, there is always the possibility that it might also have some weight for new and different courses in the future. Thus, for the purpose of deciding on the composition of the inventory, we would take seriously any sign in our analysis by subject that a complaint was related to the overall ratings. Furthermore, all of these six remaining complaints showed other signs of being useful. They were either fairly frequent, varied enough among courses so that particular courses could be singled out, or produced rankings fairly similar to those obtained from the overall ratings. Thus, we concluded that the six remaining complaints should be included if the "dissatisfaction inventory" is used again.

Some Implications: In addition to these analyses of the data on teacher reactions to the televised curriculum, we also offered some speculations and comments based partly on the analyses and partly on our observations. In these, we focused on the particular problems of the courses in each subject as they seemed to be related to the expectations, desires, and habits of the Colombian classroom teachers. In effect, we tried to suggest problems of the televised curriculum which may be culture-based.

We suggested that Social Science courses may pose a special difficulty because the material in such courses is the most likely of any to be seen by the teachers as requiring rote memorization. Most of it concerns history, civics, and geography; and when names, places, happenings, and dates are involved, Colombian teachers are likely to doubt that learning takes place unless all of these are memorized. When more information of this type than the pupils can memorize is presented, the teachers become frustrated. As a result, they complain that the programs "cover too much material." We suggest that what is required is a calculated effort to reduce the teachers' misguided aspirations through clear-cut statements of reasonable instructional goals in the Teacher Guides, and by giving the teachers an increased sense of accomplishment in their teaching with the television by providing explicit instructions for "motivation" and "follow-up."

We suggest that the very popular courses in Natural Science pose an antithesis to the usually lowly rated courses in Social Science in this respect, because the teachers did not have similar expectations to an equal degree about the material. We suggest that the teachers often complained about the courses in Mathematics "entertaining" because they felt the pupils watched with interest without learning. We do not know whether the teachers are right or wrong about this, but we do think the data suggest that they are confused by the Mathematics courses, which emphasize the "new math." The remedy, we suggest, might be similar to that for Social Science -- clear-cut statements of goals and specific instructions for "motivation" and "follow-up." We were inclined to agree with the teachers that the courses in Lenguaje placed too much emphasis on "entertainment," and we suggest a reconsideration of the courses' instructional goals, so that the telecasts could be judged more clearly in their light. The course in Music had unique goals of pleasure and participation, and we suggest that the subject might prove a valuable vehicle for encouraging teachers to interact more dynamically and spontaneously with their classes.

Teacher Guides: In regard to the teachers' reactions to the Teacher Guides -- whose purpose is to inform the teacher in advance on the content of the programs and to provide suggestions for his "motivation" and "follow-up" -- we present data only from the surveys at the end of each of the two semesters of 1965. In the first, the teachers completed a Guide "dissatisfaction inventory" similar to that used for the courses. In the second, they answered one question about the success of each Guide in meeting its principal function -- to provide information for advance lesson planning -- which permitted ranking of the various Guides. The major findings are as follows:

1) In regard to what the Guides had to say about the telecasts themselves, the most frequent complaint was that the Guides "do not give sufficient information to prepare lessons in advance." On the average, for all the Guides for the 15 courses, somewhat more than one out of 10 teachers made this complaint.

2) Almost as many -- slightly fewer than one out of 10 -- complained that the program schedule was difficult to understand.

3) About half of the teachers complained that the Guides "do not arrive on time." In earlier surveys, between 37 and 42 per cent, on the average, made this complaint. This reflected serious printing delays and distribution problems quite apart from the content of the Guides, which apparently have been since solved.

At the end of the second semester of 1965, the teachers were asked for how many of the telecasts for each course the Guide had provided sufficient information to prepare lessons in advance. We used the per cent saying "for all the telecasts" as an index of teacher satisfaction with each Guide. Thus, this overall rating for each Guide focused on the Guides' principal purpose. The major findings were:

1) There was less variation in the rating of the Guides than there was for the courses, whose overall ratings were based on a similar question, suggesting that the teachers were more uniformly satisfied with the Guides, whatever their absolute level of satisfaction may have been.

2) Although the smaller degree of variation in ratings made it difficult to make distinctions, it was noteworthy that the four Natural Science Guides were among the top half, that the Natural Science V Guide stood out slightly at the very top, and that of the five Mathematics Guides, three were at the very bottom. It also was noteworthy that the three Mathematics Guides at the bottom were those for the courses for the lower grades, about which the teachers complained with above average frequency that they only "entertain" and that the children only learn from "motivation" and "follow-up." The latter complaint would suggest that the teachers feel particularly dependent on the Guides for these courses, which they apparently find inadequate. This gives some support to our suggestion that one way to overcome teacher dissatisfaction with these courses is to make the goals set forth in the Guides more clear-cut, and the instructions for "motivation" and "follow-up" more specific.

3) The most favorably rated Guide, for Natural Science V, was said to have provided enough information for advance lesson planning

for all telecasts by only six out of 10 teachers. On the average, for all Guides, only five out of 10 teachers gave this degree of approval. Since information is the Guides' business, it would seem that, from the teachers' perspective, there is considerable room for Guide improvement.

General Attitudes Toward the Television: In our four surveys at the end of each of the two semesters of 1964 and 1965, we also asked a number of other questions about the televised curriculum. The major findings were as follows:

1) Throughout the two years, *the teachers expressed a strong belief in the instructional power of television*. When asked how much help they thought television could give them in their teaching, the per cent saying "a great deal," the most favorable of the several alternatives, ranged from 79.7 to 91.3.

2) At the end of the first year of the project, a small sample of Bogota teachers who had been teaching with television for a full year were asked whether they found such teaching "easier," "about the same," or "more difficult" than when they started. Eighty-one per cent, or four out of five teachers, said they found it "easier." Thus, *the Colombian teachers themselves say that they became better adapted to the demands of television as time passes*.

3) These same Bogota teachers were asked whether they thought the quality of the telecasts had improved over the year. Eighty-six per cent, or more than four out of five, said they thought so. *Thus, an overwhelming majority perceived improvement*.

4) In our final survey at the end of 1965, we asked the teachers whether they wanted "more," "about the same," or "less" televised instruction for their pupils. Sixty-six per cent, or two out of three teachers, said they wanted "more," and 32 per cent said they wanted "about the same." Thus, a strong majority favored an increase in the televised curriculum.

Discussion: We will now make some final comments. We feel there is considerable evidence in our survey results that the teachers as a whole are strongly favorable toward televised instruction. They have a strong belief in its instructional power, and they want more of it. We also feel there is evidence that the degree of approval given the televised curriculum by the body of teachers reached by ETV increased as time passed. We think that these attitudes of the Colombian classroom teachers provide a promising foundation for the further development of the ETV Project.

We do not think it reasonable to interpret the teachers' dissatisfaction with any course merely as evidence of negativism toward the project. Instead, the teachers' opinions should be taken as bases for reflection and action aimed at improving the televised curriculum. The teachers' opinions should be taken as a guide to trouble spots. In such a new and ambitious undertaking, it would be extraordinary if all the courses met with uniform acceptance, or all were alike in the kinds or frequencies of complaints they aroused. In the circumstances, there is considerable reason for optimism in the fact that our measurements were able to show differences, because this indirectly suggests that the teachers were really interested in the courses. They gave them some thought, and reached different conclusions about each. Their cooperation with our surveys, of course, also is evidence of interest. However, this does not mean that the differences measured should be accepted as permanent, or with complacency. The goal for course ratings should be high and uniform ratings, and the goal for specific complaints should be their reduction to a minimum common to all courses. As long as differences exist, there is room for improvement.

Although it is always tempting when looking at possible flaws to think only of the persons responsible for producing a televised course, we would also suggest that some consideration be given to culture-based factors that might affect teacher satisfaction. We think such an approach might be useful not only because it directs attention away from personalities toward ideas, and makes constructive action possible even when personnel cannot be changed, but also because these factors are likely to be important in themselves.

In several instances, we have suggested that teacher satisfaction with the courses could possibly be improved by more clear-cut statements of instructional goals and more specific instructions for "motivation" and "follow-up" in the Teacher Guides. This should not be mistaken for a lack of interest in promoting original, inventive, and creative teaching in Colombia's classrooms as part of the ETV Project. We consider this to be an extremely important goal. Nor do we think that all teachers should be forced to follow any one rigid procedure. We feel that any educational scheme should give considerable free rein to teachers capable of developing their own approaches.

However, we suspect that teachers, such as those in Colombia, who lack the thorough general education and extensive special training of those in more developed countries often are not ready to try out new ways without considerable guidance. When they do not have that guidance, they become uncertain about just what they should do. The result may be inaction, frustration, and resort to old, "safe" procedures -- such as the rote memorization by pupils of everything presented. We think that one likely source of teacher dissatisfaction with the televised courses is just this kind of uncertainty. Our results suggest, too, that many teachers felt that they did not always get enough information from the Guides. What we advocate, then, is that the Guides take account of the teacher who is uncertain and afraid to act on his own by providing clearer information for those who need it. We would also advocate that the utilization Volunteer do an even more thorough job in assisting the teacher to use the Guides, and that he make a special effort to feed back the teachers' reactions to the Guides to those who prepare them.

Research Report No. 9: The Volunteers

In this report, we brought together a variety of studies concerned with the experience of the Volunteers who served in the ETV Project during our two years of field study in Colombia. To summarize briefly:

The Volunteer and the Project: We outline the history in the project of the two large contingents of Volunteers -- the 62 "original" ETV Volunteers who inaugurated the project at the beginning of 1964, and the 55 "replacement" Volunteers who arrived in Colombia in mid-1965. We find that attrition from the project was much greater among the original than the replacement Volunteers, which we attribute to the greater frustration and resulting loss of morale experienced by the original Volunteers because they did not enter an existing organization. The implication is that a new project should try to emulate the characteristics of a more mature undertaking as much as possible.

Taking the ETV Project as an example, we then specify some of the characteristics likely to be peculiar to large, special purpose Peace Corps projects, related these characteristics to special problems to which they are likely to give rise, and suggest what can be done about these problems. We argue that the large project has special features with consequences for Volunteer effectiveness not encountered in many kinds of Peace Corps activity, and that such projects require treatment different from the ordinary. We suggested that our comments had broad applicability, since the project characteristics are not confined to television, education, or Latin American projects.

The project characteristics we found particularly relevant for Volunteer effectiveness are: a) highly centralized organization encompassing a large number of Volunteers in a single undertaking; b) staff level direction by a substantive specialist; c) interdependence of groups of Volunteers performing markedly different jobs -- in more formal terms, the integration in a common effort of Volunteers in functionally distinct roles; d) geographical dispersion and relative isolation of Volunteers engaged in the same integrated project; e) dependence on cooperation and support from host country agencies (often at a level above the Volunteer); f) a goal of building a large, multi-faceted host country organization to supplant that of the Peace Corps (the intent is common to all Peace Corps activities, but the scale and complexity of the task is many times greater in the large project); g) consulting, not teaching, in schools; h) continuity beyond a single Volunteer term of service of a complex organization; and, i) newness of the type of undertaking.

The problems to which we feel these gave rise in various ways were: a) lack of coordinated, cooperative effort between Volunteers performing different functions ("clique-ishness"); b) inappropriate recruitment and training; c) inaccurately defined and specified roles; d) defection to other activities (a parting from the project in fact, if not status); and, e) doubt over achievement. The sum effect is to reduce effectiveness.

We suggest that the large project called for: a) advance detailed specification of Volunteer roles (the Volunteer in the large project can't be effective on his own, so he should not be left to flounder); b) joint training of Volunteers expected to coordinate activities, even if they will have very different jobs; c) strong project-oriented leadership; d) systematic, prompt dissemination of project information; e) appointment of Volunteer leaders for areas and specialized functions as soon as possible; f) special Volunteer conferences; g) in-service training for Volunteers (we would consider site visits by staff in this category _if_ they are qualified to advise the Volunteer substantively); h) project-shaped policies; i) prompt Volunteer assignment to specific tasks; and, j) a schema and timetable for host country organization-building (it's hard to build capability if the capability needed cannot be specified).

One aspect of the large project underlies much of our discussion, but is so obvious that its enormous importance can be overlooked. We refer to the large number of Volunteers that are involved. Because there are so many in the same undertaking, deficiencies have a much greater cost than when Volunteer activities are highly individualized.

Effects of Service on Volunteers: We analyzed changes in attitudes, opinions, and views among some of the original Volunteers during service. The data come from a questionnaire designed to cover a comprehensive range of topics that was completed by the Volunteers shortly after they began service and again upon termination. After grouping the items of initial replies from 79 Volunteers, empirically by factor analysis; we assessed significant changes. Because we feel a homogeneous group would provide the most sensitive measurement of change, the change analysis is confined to 22 utilization Volunteers who trained together and had the same kind of job throughout their Peace Corps service.

We find significant changes ($p. < .05$, two-tailed) in attitudes and perceptions during service on 12 of 40 items, and near-significant changes ($p. < .10$, two-tailed) on four. In summary, we find the Volunteers increased their estimate of the potential of Colombia, the country of service, for social progress in regard to a high standard of living and level of education; grew more worried over their technical competence to advise teachers and more dissatisfied with their Peace Corps training, both reflecting problems encountered in fulfilling their utilization assignment; increased in desire for changes in the Peace Corps, emphasizing greater staff support overseas for Volunteers; increased in self-confidence, as indicated by increases in self-evaluations of organizing and leadership abilities; increased in their belief in the effectiveness of Latin American governments generally, but notably not in regard to Colombia's government; indicated they were disappointed in the number of Colombian friends made during service, although they also indicated that they had made a few friends (but apparently not as many as initially anticipated); expressed increased satisfaction with their project with increased estimates of its effectiveness and likely eventual success; and increased in their belief in the positive role a tourist industry can play in the economy of an underdeveloped country.

All of these represent statistically significant changes. The near-significant changes involved: increased satisfaction with their job performance (actually, $p. < .06$, so this was truly marginal); increased belief in the potential of Latin America generally for a high standard of living; and increased belief in the benefits of private U.S. investment abroad to an underdeveloped country.

We also found upon termination that these Volunteers felt their Peace Corps experience had provided them with opportunities for developing skills and abilities they would not otherwise have had, and that they felt they would be able to use their Peace Corps skills and abilities in their later careers.

Attitude Change at Beginning and End of Service: We analyzed the results of a study of changes in Volunteer attitude among the replacement and original utilization Volunteers over three overlapping months of service -- thus obtaining data on Volunteer change during the first and last months of service. In this study we measured the meaning to the Volunteers of 16 concepts related to Colombia, Peace Corps, education, and self on a 21-scale version of Osgood's semantic differential. Each Volunteer group rated the concepts twice -- once in April, 1965, and once in June, 1965. For the replacement Volunteers, this marked the beginning and the end of the first three months of overseas service, and for the original Volunteers, it occurred after about 18 months overseas service and again at termination three months later. Although the quantity of data derived was enormous (16 concepts each rated on 21 scales twice by two different groups, for a total of 1,344 measurements), the trends were so clear that the results are readily interpretable.

The concepts were: "Colombian Government," "Colombian Reliability," "Colombian Interest in Education," "Colombian Educational Methods," "Colombian Classrooms," "Television Teacher," "Classroom Teacher," "Peace Corps," "Peace Corps Staff," "Peace Corps ETV Project," "Peace Corps ETV Shows," "Volunteer Living Allowance," "Peace Corps Volunteer," "Myself," "Teaching School," and "Instructional Television in Schools."

The results for the replacement Volunteers have great interest because they reflect the impact of service on impressions largely formed by Peace Corps training, and can be construed as a test of the accuracy and viability of those impressions.

We found:

1) The replacement Volunteers underwent markedly more change than the original Volunteers, confirming the view that the first months are a period of taking stock.

2) The replacement Volunteers concentrated their changes on concepts relating to the Peace Corps and Colombia, while the original Volunteers changed considerably on concepts of broad relevance ("Teaching School," "Instructional Television in Schools"), indicating that each group was taking stock on concepts relevant to their immediate futures.

3) The replacement Volunteers shifted primarily in regard to eight concepts: "Colombian Government," "Colombian Interest in Education," "Colombian Educational Methods," "Colombian Classrooms," "Television Teacher," "Peace Corps Staff," "Peace Corps ETV Shows," and "Peace Corps Volunteer."

4) The significant changes among the replacement Volunteers were overwhelmingly negative, with only one out of a total of 94 in a positive direction. Thus, the concepts on which their changes were concentrated can be regarded as areas of particular disenchantment for which training did not paint an accurate picture.

5) There was little support for the contention that the first or last months are periods of heady personal reexamination, for there were few significant changes on the personal concept "Myself." This is particularly noteworthy for the replacement Volunteers in their first months, for whom there were very numerous changes on many

other concepts. The replacement Volunteers changed quite a bit in regard to "Peace Corps Volunteer," indicating that reexamination largely concerns role rather than self, and is more frequent in the early months.

6) The replacement Volunteers were generally more favorably oriented toward concepts related to Colombia and Peace Corps on arrival than the original Volunteers at the 18-month point (this was the first measurement for both groups). The replacement Volunteers' negative changes reduced the difference, but did not obliterate it entirely.

We suggested that the replacement Volunteer results have implications for Peace Corps training and project operation. In regard to training, we argue that it should inoculate the Volunteer against disenchantment by providing information sufficiently accurate and detailed to lead to the forming of impressions that will withstand the test of reality overseas, and that the use of former Volunteers from a project is one way to supply such information. In regard to project operation, we suggest that since the first months are a time of testing impressions against reality, it is also a period when information about a project is particularly crucial for a Volunteer.

Research Report No. 10: Feedback to the Peace Corps on Project Progress -- Some Models and Suggestions

To guide the Peace Corps in the future, this report describes some of the procedures we developed during two years of research to provide feedback for the Peace Corps Educational Television (ETV) Project in Colombia. It is only concerned with methods and techniques which provided information of direct and immediate utility for making decisions about what the project should do next. It also concentrates on those procedures which could be used readily by someone with a minimum of research experience, and which do not require extensive material or equipment.

We attempted to provide feedback about the ETV Project's various tasks: the success of a broad and extensive televised curriculum; and the reception of that curriculum in schools, its effective treatment by teachers, and the success of the "utilization" Volunteers in promoting these goals.

Product Feedback: One of the major concerns of any program is to obtain feedback so that it can improve its product. The primary product of the ETV Project was its televised instruction for pupils in public primary schools. There are two basic approaches to obtaining such feedback. One centers on finding out the reactions or attitudes toward the product; the other on determining the effectiveness, regardless of reactions or attitudes, of the product in achieving its goals.

Pupil attitudes posed no problems for the ETV Project -- they were generally enthusiastic. The teachers were another matter. The utilization Volunteers frequently reported receiving complaints from them about one or another of the courses for their pupils. Moreover, much of the success of the project depends on the classroom teachers. If they like, they can ignore the telecasts. Even if they do not ignore them altogether, they can diminish their effectiveness with disinterested, clumsy, or haphazard "motivation" and "follow-up" (the classroom teaching built around the television). As a result, we made a considerable effort to obtain feedback on teacher attitudes toward each of the various courses. Our method was a survey and a self-completion objective questionnaire or rating form at the end of each of the four semesters of instruction during our two years of research. (Examples of the items which proved most effective and the kinds of data obtained can be found in the report.) We were able to find out the teachers' ratings of the various courses and their specific complaints about individual ones.

The Survey Method: In our surveys, the utilization Volunteers delivered the questionnaires to the teachers with a stamped, addressed envelope for return. The teachers completed it in private. Presumably, the delivery by the Volunteers encouraged them to return it, and mail-return still guaranteed replies free from interviewer bias. Accompanying letters assured the teachers of anonymity, and stressed the importance of each questionnaire's being returned. Conventional sampling was barred by the lack of reliable, up-to-date lists, a problem we solved by surveying all teachers within any area that Volunteers could cover completely.

Many persons at first doubted that surveying would be successful among Colombian teachers. It was argued that returns would be meaningless and few, because few teachers had ever completed a questionnaire, and many would suspect that their replies would be used to somehow "grade" them individually.

We found no reason for such cynicism. The teachers were very cooperative, and their replies gave every sign of being meaningful.

The per cent of return for these mail-return surveys also was satisfactory -- ranging from 60 to as high as 85 per cent for zones where Volunteers were working actively at the time of the survey.

Other Feedback: We also examined the ways in which knowledge of teacher attitudes regarding the programs specially televised for them could be useful in project planning. The primary concern here is in determining how to increase the audience for such programs, since watching is voluntary. The problems and issues arising in conducting a survey with this kind of focus and the type of questions, the sample and its size and requirements for execution are reviewed.

We also discuss testing to measure achievement, or amount of learning. We used tests covering course content to obtain feedback on the instructional effectiveness of the televised instruction for both pupils and teachers. In this report we comment on the special advantages, problems, and some of the procedures we found successful for this kind of feedback. Testing to evaluate the effectiveness of instruction, such as that televised by the ETV Project, provides information that cannot be obtained in any other way. However, it is likely to be a large and demanding job. It requires considerable expertise, and is most useful under special conditions -- when effects of other variables in addition to the televised instruction can be included, or a special pilot course of some kind is under study.

As a result of such testing, as early as the end of the first semester of televised instruction in mid-1964, we were able to provide important information to Peace Corps and Colombian officials that was immediately useful. Testing showed that televised instruction as compared with its absence resulted in better test performance by pupils in several courses. Such achievement testing also showed, however, that the Volunteer utilization effort was not having the desired effect of enhancing the effectiveness of the televised instruction over and above the telecasting itself. Changes in the selection, training, and supervision of Volunteers and improved programs of televised instruction to teachers were subsequently instituted which, as we have seen, did succeed in effecting considerable gains later.

Operational Feedback: Certain kinds of survey data proved useful in obtaining feedback on the effectiveness of the ETV Project in the schools. One of the shortcomings of Colombia's two earlier efforts to introduce televised instruction into the primary school, undertaken without outside assistance, was that little attention was given to the teacher or the school. The Peace Corps project attempted to remedy this by assigning a large number of Volunteers, called "utilization" Volunteers, to work in the schools with the teachers.

At first, it was thought that these Volunteers could devote most of their time to instructing the teachers in building their teaching around ETV, and in more up-to-date teaching methodology. Soon, it became clear that they had to be equally concerned with a multitude of other things if the ETV Project were to be a success -- winning and maintaining teacher approval for the project itself, reorganizing the school schedule around the ETV schedule, obtaining adequate conditions for TV viewing, and often overcoming serious barriers to the mere reception of television -- poor wiring, irregular electrical service, and the like. In this report, we outline some of the procedures we used which can help in evaluating project progress, planning, and the assignment of Volunteers.

Three topics are dealt with -- feedback on the state of the schools or receiving network for the project as a whole, feedback for comparing needs and progress in different areas, and feedback on individual schools. The procedures for obtaining these kinds of information are discussed -- questionnaire construction, sampling and surveying. Useful questions and check-lists are presented, and the uses to which the resulting data can be put are described.

Simpler Feedback: We then describe a variety of techniques for obtaining feedback which do not require extensive resources, in people or expertise -- systematic interviewing of teachers; school and class visits; testing on a small basis with very limited goals; and gathering of "critical incident" material to better understand field problems. For each, the requirements, advantages, and the circumstances are outlined under which they can most usefully be employed to obtain information for project decision-making. On a somewhat more ambitious level, we present a design for conducting an "ETV Laboratory" or "Workshop" for television program development. Variations of this design and the requirements for obtaining really useful information are given -- including the possibility of obtaining comparisions of alternative presentations of the same material, as well as of assessing relative effects of exposure and non-exposure to particular telecasts.

Making Use of Good Feedback: The flow and treatment of feedback -- who gets it, and what he is ready or able to do with it -- is as important for its utility to a project as its quality. We distinguish between two kinds of feedback and for each outline a model for the flow and treatment of feedback within a project that would permit full use of the feedback. For "individual feedback" -- feedback for use by individuals in their own work, which does not affect broad policies or procedures -- information is appropriately passed on directly to those who will use it in their work. In the case of the ETV Project, these people are the Volunteers. If there is a special research unit, researchers may help with techniques, and analysis and interpretation, and the procedure may be monitored by administrators. For "project feedback" -- feedback affecting large segments of the project, which bears on broad policies and procedures -- the information, after analysis and interpretation by researchers, can primarily be useful only after it has been translated by Peace Corps staff into decisions and policies. These, along with the information itself, must then be communicated by staff to those who actually do the job. When the pattern for individual feedback is used for project feedback (as the Peace Corps often permitted to happen in ETV), for whatever reason, the usefulness of project feedback is markedly reduced. Although rather general in scope, this is an important finding if the Peace Corps is to make full use of the research it supports.

General Applicability: Finally, we consider the applicability of the techniques discussed in this report to other projects -- especially

Peace Corps projects which are similar either in structure or function. The procedures we found successful have a special interest because they were developed and used in connection with a new undertaking in a developing country. We were far less confident about their utility when we began than we are now. Our major tool was the mail-return survey, using a self-completion questionnaire delivered by field workers (in our case, Volunteers) while performing their other services. Few of our respondents (Colombian teachers) had had any experience with such a procedure, and even fewer probably had any idea as to its potential usefulness. Certainly, their education, ending for some with secondary school and for most with less, would give no reason for optimism over the likely quantity or quality of returns. Yet, the outcome from a methodological perspective was in every respect gratifying. This was not so once, but repeatedly, for altogether we conducted six different surveys. Many doubted, as we did at each step, whether this often useful tool could be used successfully. Because of our experience, we see no reason why similar techniques could not be used in other projects where similar feedback is needed.

One of the item batteries we used in our surveys calls for special mention. This is the "problem" or "dissatisfaction" inventory or checklist. It seems to us that the three step procedure we used -- the collecting of specific, anecdotal accounts; their classification and translation into objective items; and their inclusion in a questionnaire for broad measurement in a survey -- could be applied with considerable gain in many Peace Corps situations. Each step provides valuable information, and the final checklist can be used for self-reports, or reports by observers, as well as in a survey. In our case, the instrument which was developed proved powerful enough to identify two elusive problems -- the places or sites where more Volunteer attention was needed, and aspects of Peace Corps products (in this case, television) that needed improvement.

Appendices containing the instruments we used, both in Spanish and with English translations, complete the report. In addition, in discussing the various feedback procedures, we give numerous examples of how resulting data might be presented for use by Volunteers and staff. We would recommend a careful review of our experiences to anyone concerned with feedback about any kind of Peace Corps program.